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SURGICAL CLINICS
OF
NORTH AMERICA

DECEMBER 1928

VOLUME 8—NUMBER 6

PACIFIC COAST
SURGICAL ASSOCIATION NUMBER

Dedicated to the Memory

of

JOHN HUNTER

on

The Bicentenary of His Birth

INDEX NUMBER

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THE SURGICAL CLINICS OF NORTH AMERICA

Volume 8

Number 6

FOREWORD

AFTER a lapse of almost two hundred years John Hunter's influence is still a living and pulsating force in scientific surgery. Because of the universal recognition of his influence it is only fitting this year of 1928 the bicentenary of his birth that the Pacific Coast Surgical Association should dedicate this volume of THE SURGICAL CLINICS OF NORTH AMERICA to the memory of this great master.

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JOHN HUNTER
THE FOUNDER OF SCIENTIFIC SURGERY

It is not my purpose to present to you a hero or an idealized picture at the same time I believe that no great figure in all history has been more misunderstood than John Hunter. Instead it will be my endeavor to tell you something of the man himself his discoveries his museum and the ideals animating his whole life.

In order to appreciate his works let us first draw aside the curtain of history and try to visualize medicine two hundred years ago when John Hunter appeared on the scene which he was destined to dominate. At that time medicine was in its swaddling clothes. Very little accuracy had been attained either in this science or in natural history or in any of their branches. In the colleges human anatomy and pathology were passed over in a few lectures and comparative anatomy was in an embryonic state. The microscope had not taken its place as an instrument of precision in diagnosing healthy or morbid structure. Surgery not entirely cleaned from the barbers and taught as an appendage to anatomy was at its lowest ebb. Medicine was if possible in a more precarious condition. England did not possess in those days even one medical college. There were in London a few private medical schools unworthy of the name. This in a word was the status when young Hunter arrived in the metropolis to begin his epochal labors and investigations which were to herald the dawn of a new day in surgical science.

Well may we pause for a moment to consider his ancestry, early life and environment. His father who was nearly seventy at the time of John's birth was descended from an old and sturdy Scottish family in Ayrshire. His mother was the daughter of the treasurer of Glasgow. He was the youngest of



John Hunter

ten children and perhaps unfortunately his father had a bit spoiled by a justly popular though a loving mother and I doubt others interfere. It is not surprising therefore that the favorite son grew up impudent, restless and given to ill-natured and disobedient. He was fond of games somewhat

and boisterous outspoken impulsive and generous a good hater but withal a staunch and loyal friend

Although as a child he hated his school books he had an inquisitive mind. He was deeply interested in all the living things he saw already collecting and comparing the many specimens he found on his frequent rambles in the woods. He said When I was a boy I wanted to know all about the clouds and the grasses and why the leaves changed color in the autumn. I watched the ants bees birds tadpoles and caddisworms. I pestered people with questions about what nobody knew or cared anything about. And to these apparently useless pursuits John devoted a great part of his boyhood days.

When this ill educated unpolished unkempt youth arrived in London in 1748 at the immature age of twenty to begin his scientific career under the direction of his elder brother William the foremost anatomist of his time few if any would have been able to discover that hidden spark of genius that indomitable spirit of determination that was to make his name immortal. It is impossible to estimate the value of the early influence of the elder on the younger brother. Although only ten years his senior William was more like a father than a brother. Beyond all doubt he was the architect of his younger brother's early success. John admits the debt he owes to William in a letter written in 1762 when he states I am very much obliged to you for your introduction of me I think my name will live now a it is joined with yours.

History will ever recognize William Hunter as a great anatomist. It is conceded that his discovery of the lymphatic system after Harvey's discovery of the circulation ranks as the greatest achievement in physiology of all time. He was a cultured and charming gentleman steeped in the best traditions of his profession. He moved in the society of royalty, litterateurs and artists a close to the king being appointed by him Physician Extraordinary to the Queen and numbered among his intimates Reynolds Gainsborough Hogarth and Samuel Johnson. In sharp contrast to his distinguished brother John cared little for this society. Surgery forever will be indebted to

William if only for the part he played in helping his brother find himself who at the same time lost himself a bis deep love of science One can not help but wonder if William had not pointed out the way in anatomy in what other domain the supreme genius of John might have found expression

It is interesting but sad that the subject anatomy which early fascinated and bound these two brothers in beautiful tie of comradeship and lifework was the force that actually separated and left them estranged until a partial reconciliation was effected at William's deathbed

That work satisfies the soul is seen in the lives of both of the men. William writes in 1768 to Cullen My own affairs go on well I am I believe one of the happiest of men The great philosophical physician died his beautiful and useful life with these words If I had enough strength to hold a pen I could write but with ease and how pleasant a thing it is to die Thus the curtain fell on the best teacher of anatomy of his time

It should be remembered that John Hunter began his professional career subordinate to a celebrated teacher To the profession for some time he was known not as a good anatomist but rather as a great anatomist One always appreciates that there was no small handicap to overcome by the young sandy-haired Scottish youth who first became known after eleven days journey on horseback to London there to begin care of unparalleled industry of scientific interest and a hundred successes which were to make him thus so highly successful of the greatest metropolis and the first surgeon of all England

After eleven years of health began to fail and at the age of thirty took himself to London to become a army surgeon To this entered with some improvements in military surgery In his remarks on gunshot and warlike he lays down some fundamental principles often overlooked today and reveal the fact that he possessed that a accomplishmient most useful in combat When he emphasized the importance of not enlarging the limb frequently laying them alone unless somewhat necessary as to be so he proved himself

a master surgeon How often have we all seen infected wounds which might have been clean ones had they not been probed by a meddlesome surgeon Hunter said This is common surgery and ought to be military surgery The significance of this axiom gains more importance when one realizes that it was contrary at that time to the advice of such masters as Ambroise Pare and Baron Percy An experience in three European wars has convinced me of the soundness of Hunter's doctrine uttered one hundred and sixty five years ago

Even at this period of Hunter's career his relationship with his contemporaries was not very cordial as may be seen in a letter written to William from Bellisle in 1761 in which he wrote in part I have had the eyes of all the surgeons upon me both on account of my supposed knowledge and method of treatment My fellow Creatures of the Hospital are a damn'd disagreeable set The two Heads are as unfit for their employment as the devil was to reign in Heaven

Returning to London in 1763 after he had added to his great anatomic knowledge three valuable clinical years in military surgery we find him settled in a home in Golden Square

To the people around Golden Square as Stephen Paget has written he was a zealous student of the human body who might or might not restore you to health but would certainly wish to anatomize you if he failed But it would not be fair to have one think he was a recluse at home only in a dissecting room with a cadaver and scalpel No he was not without his warmer side It is said at this period that he was a companionable man associated in company drank his bottle told his story and laughed with others

He was now thirty five years of age and beginning the most productive period of his life We must no longer regard him as merely an anatomist or army surgeon but as a comparative anatomist biologist naturalist physiologist pathologist an eminent teacher and above all in the fullest sense of the word a great surgeon

Soon after he returned to London he organized his school of anatomy and started collecting and dissecting animal He

William if only for the part he played in helping his young brother find him self who at the same time lost him self in his deep love of science. One cannot help but wonder if William had not pointed out the way in anatomy in what other domain the supreme genius of John Hunter have found expression.

It is a terrible thing but sad that the subject anatomy which early fascinated and bound these two brothers in a beautiful tie of comradeship and friendship was the force that actually separated and left them estranged until a partial reconciliation was effected at William's deathbed.

That work sat like the soul in the lives of both of these men. William dies in 1768 to Cullen. My own affairs go on well. I am I believe one of the happiest of men. This great philosophic physician closed his beautiful and useful life with these words. If I had enough strength to hold pen I would write how easily and how pleasant a thing it is to die. Thus the curtain fell on the best teacher of anatomy of his time.

It should be remembered that John Hunter became his professional career subordinate to a celebrated botanist. Through the profession for some time he was known only as a good anatomist but both as a botanist and as an anatomist. On reading apprentices that there was a small hindrance to be overcome by the young man named Scott Hutton who left the farm and after long and journeys on horseback rode into London to begin a career of unparalleled industry, success in every branch of his profession which were to make him the most sought after surgeon of the greatest metropolis and the first surgeon of all England.

After eleven strenuous years of health began to fail him at the age of thirty two he left London to become an army surgeon. To this effect we see many improvements in military surgery. In his emblem gunshot and fracture ample has been done some fundamental principles often overlooked today and reveal the fact that he possessed the accurate knowledge most marvellous ability. When he approached the importance of not only a wound but frequently leaving them sound useful methods always to bed help him if

writes to him thus But let her go—never mind her I shall employ you with hedgehogs

That Hunter did not indulge in abstract theories and philosophical vagarie but wrested from nature her innermost secrets is evident in a letter written to Jenner who had offered a conjectural explanation of a phenomenon Hunter writes on August 2 1775 But why think? Why not try the experiment upon a hedgehog and it will give you the solution He was constantly trying to find ways to repay Jenner for all the trouble of collecting and sending him various specimens

Among the many things to admire in Hunter is the fact that he never took life or himself too seriously as witness the following note to Jenner written at the height of his fame after he had become a frequent sufferer from angina pectoris

January 1789

Dear Jenner I wish you joy it never rains but it pours Sooner than the brat should not be a Christian I will stand God father for I should be unhappy if the poor little thing should go to the devil because I would not stand God father I hope Mrs Jenner is well and that you will begin to look grave now you are a father

Yours sincerely

J Hunter

And these lines in another letter What are you about? I have not heard of you and from you for this long time you must be about some mischief that keeps you so quiet Let me know what you are doing or else I will blow you and have you brought to town as a criminal

At the age of forty five he deemed it necessary to become a public lecturer for two reasons first because he was so often misquoted and second because his discoveries were often referred to as the discoveries of others After he became active in writing he soon saw the advantages of placing his thoughts on paper He stated It resembles a tradesman taking stock without which he never knows either what he possesses or in what he is deficient

It is regrettable that John Hunter did not see the advantages

was deeply interested in every living thing. His mind must have been most of the time simply teeming with innumerable great and comprehensive ideas and generalizations which he was ever striving to correlate and interpret as nature's methods and law in his tireless efforts to relieve the sufferings of humanity.

He spared no expense or trouble to himself or his friends to obtain any kind of animal he desired. He was undoubtedly one of the greatest collectors every known and scoured the world through friends and messengers for the flora and fauna of all land. As soon as he had accumulated ten guineas he would purchase some addition to his collection of animal. Not infrequently he borrowed from his friend Dr. George he said to one of his good friends a book seller have you my money in your pocket. Have you five guineas—if you have and will lend it to me you shall go halves. Halves in what inquired his friend. Why halves in a magnificent tiger which is now down in Castle Street. His friend lent the money and John got the tiger.

None of his friends did he call upon more often to obtain specimens than his former favorite pupil and life long friend Edward Jenner. The warm friend he which he sted through all the years between them is shown in many letters Jenner was second to the greatest of his master and often spoke of him highly of purpose and warmth of heart. He paid him highly and carefully preserved all the letters from Hunter. Hunter's regard for Jenner can be epitomized in the lines of a letter to him in 1792. I don't know anyone I would sooner want to as you. I do not know anybody I am so much obliged to. Then he gave him faithfully advice in the treatment of a patient about whom Jenner is solicitous. He lamented that all the hedgehogs that Jenner had sent him had died and he does more adding I am he chooses.

The importance hedgehogs have assumed in Hunter's estimation in connection with other affairs to which he sometimes in an eminent statistical perhaps a little likely to be unduly influenced emphasized in a letter of sound advice. In this letter he Jenn who has suffered a loss of time in hunting the

room not infrequently with connoisseurs raconteurs and musicians She added a cultural atmosphere to their home and her influence smoothed off the rough edges of Hunter's early uncouthness She kept pace with him and in the midst of his greatest successes she was something more than the mirror of his life—she shone of herself Many notable people were frequent guests in the Hunter home among whom were Madame D Arblay Mrs Montagu and Lord Oxford Mrs Hunter wrote

My Mother Bids Me Bind My Hair which was set to music by Haydn and also the words for Haydn's *Creation* After Hunter's death she published a volume of poems and composed that remarkable epitaph for his memorial tablet in St Martin's in the Field She retained her wit and beauty to the end passing away in her seventy ninth year

One cannot help but have a feeling of sympathy for Mrs Hunter as her famous husband's museum specimens began to overflow the London home and it became necessary to build a large house at Earl's Court where most of his biological researches were conducted There he kept for purposes of study and experiment the fishes lizards blackbird hedgehogs and other animals sent him by Jenner tamed pheasants and partridges at least one eagle toads worms and other creatures obtained from every quarter of the globe Here it became necessary to add more and more rooms for his ever increasing collection The maintenance of this menage together with his other establishment required a retinue of fifty servants It is little wonder therefore that his income allowed nothing for saving This rambling old house must have appeared more like an old country shop than a dwelling or even a scientific museum Be that as it may it was the apple of Master John's eye Frank Buckland the eminent naturalist observed John Hunter had as great horror of feminine interference in his studio as have many philosophers of today One had only to be familiar with the cloisters leading through a subterranean passage to be able clearly to visualize the indefatigable John wheeling in a tidy sized cart or truck or dragging into his den anything from a giant's body to a good sized whale Many of his pre-

a classical education would have given him his writings constantly reveal the handicap under which he labored all his life. This training would have given a finish to his work but would not have changed an iota the mental processes which he used so effectively in his monumental investigations. However his lack of a classical education afforded some of his contemporaries particularly Jesse Foot urged by jealousy an opportunity to thrust in here and there a word of crippling criticism to which John replied "Jesse Foot accuse me of not understanding the dead languages but I could teach him that on the dead body which he never knew in any language dead or living."

In Hunter's days in our day men were prone to write papers and books on subjects which they had not thoroughly mastered. Hunter's opinion for that sort of medical literature is well expressed in the following: "A father brought his son to him as a pupil and inquired what books his boy should read. Hunter replied by taking them into his dressing room and showing them the books and replying "Sir these are the books your son will be in under my direction and others are fit for very little."

At this period we are seeing Hunter in the happiest time of his life the zenith of his career rapidly winning recognition. That his fame was not a glory reflected from his celebrated brother but was established early on his independent merit and native ability is attested by the fact that in 1761 he was elected a Fellow of the Royal Society which was three months before the honor was conferred upon William. That he was happy there can be no doubt. The joy of work and the satisfaction of accomplishment appear in writings to his brother later in reference to his work he says "It is nearly what I want beyond which I have no ambition." Then after mentioning his various experiences he concludes "While all these circumstances go on I must continue to be one of the happiest men in the world."

A great factor in the happiness of John Hunter was his fortunate chance finding "the ass" fourteen years before he began — *buo a t i harm o n h illied he bra i*

He discovered—

- 1 The lacrimal ducts
- 2 Many features of the lymphatic system
- 3 The exact descent of the testes in the fetus
- 4 The part played by the olfactory nerve for the detection of smell and the fifth cranial nerve for sensation
- 5 How union of ruptured or severed tendons occur having ruptured his tendo achillis when dancing. Then he performed tenotomies on dog thus laying the foundation of orthopedic surgery
- 6 That digestion is arrested in hibernating animals and drew the inference therefore that digestion is also arrested during the processes of inflammation in the human body. He pointed out that feeding and stuffing patients at this time was contraindicated. This great principle has often been overlooked and it remained for two great American surgeons of our day Murphy and Ochsner to emphasize this again in the treatment of acute appendicitis

He studied and made applicable as follows—

- 1 The transplantation of teeth in the human subject and upon skin grafting
- 2 The mode of growth of the long bones
- 3 The arterial supply of the gravid uterus
- 4 The prevention of rabies or hydrophobia and was one of the first surgeons to teach that debridement of the wounded structure was indicated
- 5 Shock phlebitis pyemia and intussusception inflammation gunshot wounds and the surgical disease of the vascular system
- 6 Head injuries particularly on fractures of the skull and trephining
- 7 Artificial feeding demonstrating for the first time how this could be accomplished by means of a flexible tube passed into the stomach
- 8 Artificial or forced methods of respiration inventing an apparatus for such

cious acquisitions found residence there without Mr Hunter's knowledge and as adds the humorous Buckland I'll be bound to say she used occasionally to lead him a life and kick up a row if any preparation with an extra effluvium about it was left on the dissecting table.

Hunter's collection numbered nearly fourteen thousand specimens. These were explained in ten volumes of manuscripts, notes, drawings and descriptions. He dissected more than five hundred different species of animals many of them more than once and left records of three hundred and fifteen dissections. The vast museum containing over \$30,000 was bought by the Government after his death for \$15,000 and now forms the famous Hunterian Museum of the Royal College of Surgeons. I do not believe that the annals of medical history record any other man who ther before or since Hunter's time has ever accomplished so much with his hand. For more than forty years he labored incessantly.

How it was possible for him to accomplish so much seems a mystery until one is acquainted with Hunter's personal habits. He is said to have arisen often at four o'clock and to have gone immediately to the dissecting room where he worked until nine. Then a small breakfast consisting of bread and butter after which he would round until four, a nap for one hour and then to his lecture or to his museum where he worked for hours. Not infrequently when his admiring faithful and valiant servant William Clark left him at midnight he was trimming his lamp for further study. When a young student came down to London to enroll in his class and called on him one afternoon he gave him a few particulars concerning the work. He told him to return the next morning at which he would put him further in the way of things. When the student a week later came again to his master who had arranged his funeral Hunter busily engaged in dissecting skeletons.

It is possible in a paper of this length to enter merely a few of the outstanding achievements of this dynamic and able and assiduous investigator and surgeon.

knowledge as he requests him to send more hedgehogs for experimentation

While he was progressive and enthusiastic in his ideas his confreres were in a large measure conservative and stolid. Encouragement he never received. Some of his contemporaries were indifferent to his doctrines others incited by the venomous trio of prejudice envy and jealousy were openly opposed to him. That he was thoroughly cognizant of all this was manifested when he said "The few good things I have been able to do have been accomplished with the greatest difficulty and encountered the greatest opposition." Unquestionably his doctrines were necessarily not those of his age while lesser minds around him were still dim with the mists of the ignorance and dogmatism of times past his lofty intellect was illuminated by the dawn of a distant day. It is said he poked rather rough jokes at the pathologic dogmas held by some of his colleagues and gloried in the large group of physicians and students who followed him and not them. He must have been a bit of a pea fowl wearing his laurels with an aggressive air.

Due to the increasing frequency of the spasmodic attacks of angina pectoris and to his lengthening years he was nevertheless compelled to endure the lash of professional jealousy. He realized that his life hung by a thread and said "My life is in the hands of any rascal who chooses to annoy and tease me." With many of his confreres still enslaved by the traditions of the past he was often impatient and even overbearing. Such a temperament as may well be imagined was not conducive to a particularly cordial relationship. Nothing is more certain to blind one's reason than jealousy. Many of Hunter's colleagues in London at that time could see no value in his discoveries or his marvelous collection. Envious of his superior intellect they grouped themselves and opposed all his efforts for the improvement of science.

An attack of angina pectoris was precipitated at last when one of his colleagues contradicted him at a Board Meeting of St George Hospital while he was speaking in behalf of two students. His anger was instantly excited he struggled for a moment to

Space will permit no more than a mere mention of his observations on fetal smallpox on the efficacy of mercury in the treatment of syphilis on the differentiation between hard chancre and chancroid ulcer on the development of birds in eggs on superfetation electric fishes postmortem digestion of the stomach on regeneration and transplantation of tissues poison in animal and on the habits of bees hornets and wasps and on young bulls leopard and other ferocious animals.

His four most striking pieces are—

The Natural History of the Human Teeth

A Treatise on the Venereal Disease

Observations on Certain Parts of the Animal Economy

A Treatise on the Blood Inflammation and Gunshot Wounds

His greatest innovation in surgery was the ligation and cure of a popliteal aneurysm by ligation of the femoral artery high up in what is aptly called Hunter's canal thereby introducing and establishing for all time a new principle in surgery which has saved thousands of limbs and lives and as P. Assalini an Italian surgeon who saw it first performed said It excited the greatest wonder and awakened the attention of all surgeons of Europe He had arrived at this principle by observation of and experimenting with the antlers of a deer in Richmonde Park Rohrer has stated that this one feat of surgical daring novel alike for its resourcefulness and originality is in itself sufficient to give him undying fame.

Honor is at the time begun to pour in on Hunter from England Scotland and Ireland and indeed from all parts of the scientific world his years of ceaseless till now bearing fruit in abundance We must agree with Palm who states that of all who have attested to the highest rank urge in none ever reigned so entirely by the pure force of spiritual talents John Hunter or was less indebted than he was for his success to the good will and assistance of his contemporaries Living up to the last Hunter worked as if he expected to live always One of his last letters to Jenner reveals his unique character for

principles and law. The surgery of the Middle Ages was a trade Ambroise Pare and Jean Louis Petit converted it into an art and John Hunter elevated it to the rank of a science. Hunter's permanent position in science is based upon the fact that he was the founder of experimental and surgical pathology and a pioneer in comparative physiology and experimental morphology. He has left to all succeeding generations a heritage of achievement and a legacy of wisdom and knowledge never equalled nor perhaps will it ever be excelled. His influence upon scientific medicine therefore after a lapse of almost two hundred years is still tremendous and inestimable.

Such was the life of this all embracing genius the like of which the world produces scarcely once in many centuries. We readily agree with his apt remark to Maxwell Garthshore who finding him one morning very occupied in his museum said

John you are always at work To which the intrepid John replied I am and when I am dead you will not soon meet another John Hunter.

His name will live forever enshrined not only in the hearts of all surgeons but in the hearts of all true scientists. He belongs to the Ages. Fortunate is it that Sir Joshua Reynolds has bequeathed us his portrait—the painting of an immortal by an immortal.

And even though time should dim the work of the painter there will remain the deathless tribute of the poet his wife who composed these beautiful verses as his epitaph

H	t	w	f	l	l	ld	d	t	ll			
O	w	h	m	mm	p	k	f	g	fd			
Wh	se	h	f	th	ght	N	t	I	ld	full		
Wh	se	d	p	e	e	h	th	I	f	Truth	p	d
H	t	s	y	f	t	I	d	w	t	hf	lca	
If	th	t	l	b	o	f	p	f	l	m	d	
T	sooth	th	H	b	m	t	y	m	t	h		
D	serv	th	gr	t	f	lpl	dt	f	m	k	d—	
T	h	b	h	m	k	b	d	h				
E	vy	ld	se	t	dm	m	sob	ght				
T	h	se	peck	h	h	th	b	f	d	3	ppc	
T	l	th	g	f	m	h	m	d	l	m	ight	

inhibit his passion tottered to an adjoining room and fell dead. Such a death was not an unfitting climax. He died as he had lived serving his fellowman. Thus ended the dramatic career of one of the greatest investigators scientists and surgeon of all time. But as always time has worked its re-enactment. Those contemporaries who criticized him most have joined the great caravan of fading names while his fame increases with the age.

To appreciate fully the real inner man to discern what were the fire of human kindness that burned within his breast one has only to remember his loyalty to his friend his fondness for animal his self-sacrificing attention to and his utter frankness with his patients his charity his ready response in a crisis in students or true born practitioners—all the eloquently testify to the warmth and generous nature of the genius of whom our profession shall always be proud.

As a test at the may be measured by the length of its shadow so the greatness of John Hunter may be estimated by the famous successors who were his pupils and whom he deposed. Well might he have been proud of such a brilliant following as Cline Abernethy Astley Cooper Tache Green Bodie Larence—each of whom played the respective rôle in the elopement of Elizabeth Hurst. That Hunter influenced an important factor in the development of early American surgery there can be no doubt.

The limits of time and space permit me an opportunity to seize you only portion of the magnitude and scope of John Hunter's life work. From the beginning of his scientific career to the end that he less and under taking than the study of the phenomena of life in health and disease throughout the whole of his life. At all times he has been interested in the truth of truth.

In the sense that he was constantly learning further knowledge he was what one would call a popular scientist. He introduced a new spirit—a method of approaching surgical problems pursued abstractly and contemptuously. He found surgery a handicraft still saturated with the old magic and mysticism a determined far to the right general

CLINIC OF DR ANDREW STEWART LOBINGIER

GOOD SAMARITAN HOSPITAL

PERICOLOECYSTIC ADHESIONS

It would seem singular that in all the voluminous literature concerning disease of the gall bladder and ducts and especially the pathological conditions associated with obstruction to the normal discharge of bile so little importance has been ascribed to the obstructive influence of omental adhesion.

It is rare that a seriously diseased gall bladder will be found without distortion from bands of omental attachment which are the result of a pericholecystic inflammation. These bands may occasionally arise from an extrinsic inflammation due to appendicitis or a septic kidney followed by peritonitis localized in the right side. But almost invariably there is evidence of a previous septic hepatitis and cholecystitis wherein the gastro hepatic and great omentum have formed adhesions to the gall bladder duodenum and under surface of the liver frequently drawing the hepatic flexure and first portion of the transverse colon far from the zone of their normal excursion. We so frequently see the gall bladder partly or wholly covered in with such adhesions weighed down by a dragging transverse colon from the omental attachment that these adhesions have assumed in our mind a place of major importance in all operations in the right hypochondrium. Moreover we are strongly of the opinion that in at least 30 per cent of these cases the need of a cholecystectomy will not appear when the gall bladder is freed and the omental attachments are broken up. When the liver is thin and with a soft pliable feel and a normal color and the gall bladder wall is found to be thin and blue there can be no justification for further operative interference after the adhesions are broken.



cystic duct and remove the gall bladder without draining the liver through the cystic duct is manifestly irrational surgery. This pathology may persist for years without a competent diagnosis being reached or the patient relieved of the distressing symptom complex marked chiefly by those digestive disturbances characterized by nausea, gas distention and colonic pains. These patients spend years in sanatoriums under treatment for indigestion and colitis and drift eventually into the absurd tyrannies of new paper dietitians.

I can recall no other abdominal pathology which contributes so much to the sum total of human wretchedness as these undiagnosed and improperly treated adhesions. It would appear that they remain unfamiliar to internists and many surgeons chiefly because they are not routinely looked for. It is so easy to think of cholecystitis and the various forms of colitis and to be governed in reaching this conclusion by the readings of a radiographic gastro intestinal group of films or of cholecystography. The revelations of the living pathology at the operating table show with graphic emphasis how misleading laboratory findings of all kind may be in these cases compared with the value of the clinical evidences revealed by a careful and critical bedside analysis. We have been led reluctantly to attach very little importance to the negative evidence found in the radiographic film in perihepatic adhesions. In the majority of instances we go through with the study as a matter of routine but it rarely helps us.

Pain in the right side near the colon flexure is a cardinal and constant symptom.

Pyloro spasm from constriction or tugging at the first portion of the duodenum is a definite and frequent symptom.

Bloating, a sense of fulness after even a small meal is almost invariably present. Tenderness over Robson's point is constant in 85 per cent of our cases.

Constipation, a coated tongue and aversion for fatty foods are characteristic and important factors in the complex.

The treatment may be simple—to free the adhesions and turn in the raw surfaces. But how very extensive and time con-

up and the raw omental areas carefully turned in. Far too many such gall bladders have been removed. There is certainly no reason for imposing the hazard of a cholecystectomy with so little pathology in the liver and gall bladder to justify it.

A history of acute appendicitis or of pyonephrosis should lead one to suspect a possible extension to neighboring viscera. Cases are being reported in the literature of obstructive jaun-



Fig 40.—P. h. f. c. t. db. I. g. g. II. b. dd. d. od. m. d.
h. pat. ff. k. k. t. m. l. l. m. d. ppe. d.

dice resulting from adhesions arising from appendicular or renal infections while the infection was still active. As soon as the septic focus was destroyed the jaundice subsided.

We may find in many cases of adhesions about the gall bladder a persting hepatitis with edema and granulation, and associated with the condition a definite chronic hepatitis with thickening of the gall bladder wall and a non-inflammatory edema of the pancreas. In such a case if the

CLINIC OF DRs W I TERRY H H SEARLS AND
R J MILLNER

FROM THE DEPARTMENT OF SURGERY OF THE UNIVERSITY OF
CALIFORNIA MEDICAL SCHOOL

PRESERVATION OF THE PARATHYROIDS AND
RECURRENT NERVES BY A MODIFIED THYROIDECTOMY

IN man four parathyroids are usually present although the number may occasionally be increased or decreased. Accessory fragments of parathyroid tissue are frequently present and may be found anywhere in the region of the thyroid or trachea.

The superior parathyroid are usually described as lying on the posterior surface of the thyroid near the junction of the upper and middle third of the lobes. This corresponds approximately to the level of the lower border of the cricoid cartilage. The inferior parathyroid usually lie on the posterior surface of the thyroid near the postero-inferior margin of the lateral lobes. The normal location of the parathyroids is in the loose connective tissue immediately outside the thyroid capsule. Occasionally they lie in a split layer of thyroid capsule but it is always possible to lift them by blunt dissection and demonstrate their entire lack of connection with the thyroid gland tissue.

Variations from the typical arrangement are quite common. Studies in this clinic based on 612 thyroidectomies and 20 dissections of cadavers show that in approximately 30 per cent of cases one or more parathyroid are present on the lateral anterior instead of the posterior capsule. Microscopic identification of parathyroid gland is so accurate and so positive as to exclude all doubt concerning the character of the tissue examined. In our series of abnormally located parathyroids the inferior outnumbered the superior approximately two to one.

sumin this procedure may be is obvious to anyone who has seen how e tens ve and complicated these adhesions often a e

The appendix may have been removed on a previous occa sion If so it i nevertheless important to examine the cecum and the terminal ileum Often very obstructive kinks and ad he on may be found there The region of the ileocecal val e cannot be s nored even when we are thinking intensely on what we shall find hi her up about the gall bladder

The ascending colon the hepatic flexure and the fir t third of the transverse colon merit an equally critical inquiry Rarely are the flexure and the transverse colon not involved in adhesions about the gall bladder

Aft r all adhesions about the gall bladder ha e been freed and the duodenum nd cy tic duct mobilized we have finally to determine by the condition of the liver and pancreas and the freedom with which the gall bladder empties and the degree of normality of its wall wh ther we shall leave it or remove the fundus and drain the liver through the cystic duct or do a c mplete cholecystectomy

The surgeon who has proved himself qualified to make a correct diaognos in thi complicated pathology has learned well how to competently deal with the problems which will co front him in the ope atin r om

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R. J. MILLZNER

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Variations from the typical arrangement are quite common. Studies in the clinic based on 617 thyroidectomies and 25 dissections of cadaver show that in approximately 30 per cent of cases one or more parathyroids are present on the lateral or anterior instead of the posterior capsule. Microscopic identification of parathyroid gland is so accurate and so positive as to exclude all doubt concerning the character of the tissue examined. In our series of abnormally located parathyroid the inferior outnumbered the superior approximately two to one.

We have found no correlation between the size or type of goiter and abnormal location of the parathyroid

The parathyroid have a definite blood supply which aids greatly in their recognition and identification. They always lie in close relation to the superior and inferior thyroid arteries and their larger anastomotic branches. The superior parathyroid on each side receive its blood supply from a superior parathyroid artery which arises as a short unbranched vessel from the lower portion of the superior thyroid artery or from one of the larger anastomotic branches between the superior and inferior thyroid arteries. Each inferior parathyroid is supplied by an inferior parathyroid artery derived from the inferior thyroid artery.

The most important function of the parathyroid gland has to do with the control of the concentration of calcium in the blood. Collip has been able to adjust the level of blood calcium at will by the administration of the active principle of the parathyroid gland—a substance which he has isolated and named parathormone. In parathyroidectomy animals a normal blood calcium a hypocalcemia or a hypercalcemia was effected at will by using varying amounts of the hormone the blood calcium varying directly with the amount of parathormone administered.

Both hyper and hypo calcemia cause alarming symptoms but it is the latter condition which is of chief interest to the thyroid surgeon. As the blood calcium drops below the normal content the clinical picture passes through the mild to the advanced forms of tetany. The mild forms are characterized by hyper excitability of the peripheral motor nerves (best illustrated by the Chvostek, Erb and Trouseau signs) and a feeling of numbness and tingling in the extremities.

In the more severe cases muscle twitching are typical in the advanced conditions there are characteristic convulsions with flexion of the fingers in the metacarpal phalangeal joints and marked adduction of the thumbs (the so called obstetric hand). The foot is often markedly affected.

The Chvostek sign is elicited by tapping the seventh nerve where it emerges from the parotid gland thereby stimulating

contractions of the facial muscles on that side. It is a sign of hyperexcitability of the seventh nerve and may frequently be found in apparently normal individuals.

Trousseau's sign is obtained by circular compression of the arm at the level of the elbow. After several minutes the obstetrical hand appears.

Erb's sign is hyperexcitability of motor nerves to galvanism. It is an accurate and delicate test for tetany. The Trousseau is also accurate but less delicate. The Chvostek is quite delicate but not so accurate.

Patients suffering from hypoparathyroid tetany obtain relief when the blood calcium is restored to its proper level. This may be done in the mild cases by simple administration of calcium lactate carbonate or bormide by mouth (1 gm. t.i.d.) or the chloride intravenously (10 c.c. of the 5 per cent solution once or twice daily). In the more severe cases parathormone (25 to 100 units daily) controls the symptoms readily. Frequent blood calcium determinations should be done to prevent the development of hypercalcemia.

Successful parathyroid transplant in the human have been occasionally reported in the literature. Halsted succeeded in transplanting them in animals.

Because of the occurrence of parathyroids on the lateral and anterior capsules of the thyroid gland (as noted above) many of these glandules are removed in the standard operation of subtotal thyroidectomy in which the surgeon plans to leave only the posterior portion of the capsule together with a small amount of thyroid tissue. Lahey observed the occurrence of parathyroids in removed tissue in operating for goiter and outlined a technic for their reimplantation at the table. Noting Lahey's findings a more careful examination of our material revealed a startling frequency of parathyroid in removed specimens of thyroid gland. In such instances the parathyroids generally lay on the lateral or anterior capsule of the thyroid in close association with a large vessel or near a branch of the superior thyroid artery at the very tip of the upper pole.

By modifying the resection so as to preserve lateral as well

as posterior capsule (Fig. 451) it has been found possible to save many parathyroids of the patients. A small amount of each superior pole is also left to further aid in their preservation. It is interesting to note that Dr. Halsted advised many years ago the preservation of somewhat similar portions of the thyroid gland and capsule in order to save the blood supply to the parathyroids. He had observed clinically fewer cases of tetany when these procedures were employed. Since these modifications have been effected parathyroids have only rarely been found in the removed tissue. Careful examination of the thyroid cap-



Fig. 451.—Schematic plan for modified thyroidectomy.

sule during operation may also reveal the characteristic nodules and specimens can then be instituted for the protection. These changes also serve as additional protection against recurrent laryngeal nerves.

To be of clinical value the recognition of normality indicated parathyroid must be gained in the operating room rather than in the pathologic laboratory. Nearly all of the normally placed parathyroids are saved by the above described modified technic. Those that are removed may be grafted while the specimen is still sterile and reimplanted at once.

The technic of search for removed parathyroid will

simple. The specimen may be examined by the operator or one of his assistants. The relation of the parathyroids to the branches of the superior and inferior thyroid arteries is of great assistance since it is usually only necessary to follow along these vessels and their larger branches.

The parathyroids are oval bean shaped or flattened bodies. They vary from 2 to 8 mm in length, 2 to 4 mm in width and 1 to 3 mm in thickness. They tend to be rather soft and inelastic. The color varies from yellow or yellowish brown to a dark reddish brown depending on the degree of vascularity and the amount of fat present beneath the parathyroid capsule. In fixed material they approach more of a chocolate tint. In the fresh they may be somewhat translucent especially if small. The presence of the relatively large parathyroid artery entering the hilum and the location in the loose connective tissue just outside the thyroid capsule usually make identification simple.

The appearance and relations of the parathyroid are sufficiently characterized to identify them in most cases. They must however be differentiated from other nodules which may lie in the same locations and closely simulate them. Fragments of thyroid tissue cause the greatest difficulty. These fragments may be small adenomas or small detached pieces of thyroid gland proper. Thyroid tissue is pinker and frequently contains recognizable colloid. It is also much firmer and more elastic. In nearly every case it is possible to demonstrate its connection with the thyroid gland and it cannot be separated from the thyroid capsule without tearing this connection. A definite artery is never seen.

Small masses of fat may simulate parathyroids but are not encapsulated, are softer and have characteristic color. They also lack a definite artery. Small lymph nodes are frequently confused with parathyroid. They may even show a distinct hilar artery. (This is especially prominent in hemolymph nodes.) They may be differentiated by the grayish red in hemolymph nodes and the much firmer consistency. They are usually more opaque.

Any parathyroid found on the removed specimen are at L. 8-8

once dissected free from the gland and placed in warm sterile Ringer's solution. During the closure of the wound a small pocket is formed in the belly of one of the sternomastoid muscles by blunt dissection. The parathyroid is inserted in the pocket and the edges approximated by interrupted sutures of No. 000 catgut.

Conclusions.—1. The parathyroid plays a vital part in calcium metabolism in the body. Removal of one or more of them may lead to the development of very grave symptoms.

2. The frequent occurrence of parathyroid on the lateral and anterior capsule of the thyroid has been demonstrated.

3. A simple modification of the standard operation of subtotal thyroidectomy is offered in order to preserve any parathyroids which may lie on the lateral capsules and to act as an additional safeguard to the recurrent laryngeal nerve.

4. Specimens should be examined while still sterile and any parathyroid tissue found reimplanted.

CLINIC OF DR. EMMET RIXFORD

STANFORD HOSPITAL

LESIONS PRODUCED BY FORCED ABDUCTION OF THE SHOULDER

WHEN the limit of motion in any direction of a diarthrodial joint is reached the ligamentous apparatus of the side away from which the rotation takes place (side of the convexity) becomes taut i.e. it furnishes tensile resistance to further motion in that direction.

Such tensile stress developed as movement ceases under the laws of mechanics must be balanced by corresponding compressive stress which of course is furnished by contact of the bony surface of the joint.

If severe enough force is applied after the limit of normal motion is reached this balance is overcome and something must give way. Ligaments are torn or avulsed from their bony insertions producing sprain or if carried further dislocation or the bone may give way yielding to tension (common) or to compression (relatively rare).

Abduction at the shoulder joint with which we are now dealing is limited by tension of the infrerior portions of the capsule balanced by pressure of the head of the humerus against the glenoid. At the same time the greater tuberosity of the humerus comes into contact with the upper portion of the articular fibrocartilage (labrum glenoidale) which separates the tuberosity from the bony edge of the glenoid and which furnishes therefore an elastic cushion lessening the suddenness or shock of the impact but which is easily crushed. Pure abduction is thus limited at about 90 degrees (the horizontal position). On the

other band if the arm be raised in the sagittal plane—a motion which I like to call extension—the greater tuberosity traverses an arc more or less parallel to the posterior edge of the lenoid capsule at first becoming relaxed because of unwinding of the spiral direction of its fibers seen in the anatomical position also because of its laxity become tense and arrests elevation only after a rotation of 150 to 160 degrees is reached.

If any elevation of the humerus in the sagittal plane abduction be made to its limit the greater tuberosity impinges on the upper posterior edge of the scapula limiting to cease both the abduction and extension.

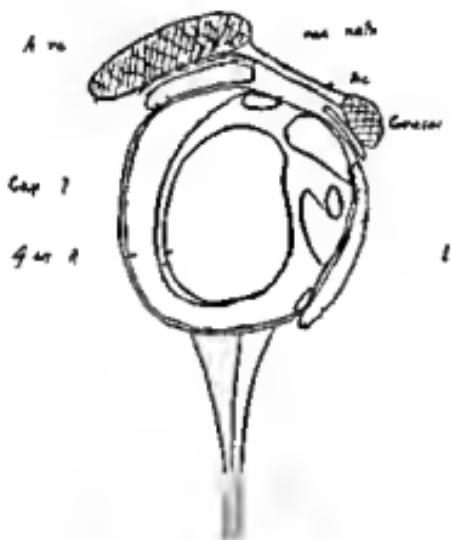


Fig. 4.—Capitulum of the humerus in the glenoid cavity.

Most abduction injuries of the shoulder are grieved by falling forward the hand and arm being thrown more or less forward in protection the arm being impinged on. It follows then that the greater tuberosity is most forward position resulting from the initial rotation. If now abduct in occurs with a greater or less degree of elevation in the glenoid placing the greater tuberosity against the edge of the glenoid somewhat below its normal upper position.

If the capsule is fixed by tension of muscle and bone (homobond and long rapids of trapezius with the trapezius)

balanced by compressive stress transmitted along the clavicle and severe abducting force continues ligament or bone must give way. The principal lesions resulting from this single mechanism are briefly described below.

The distribution of the stresses of tension and compression in the structures about the shoulder joint when this joint is subjected to violent abduction may be gathered from the following diagram (Fig. 453) where compression is indicated by a plus sign (+) and tension by a minus sign (-). Of course the whole humerus and scapula are under stress tensile on one side and

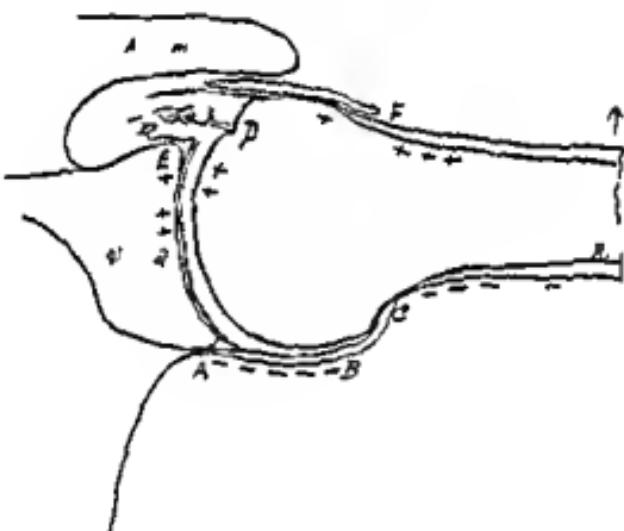


Fig. 453.—Stress and tension in shoulder joint produced by abduction. +, compression; -, tension.

compressive on the other and throughout the material of their interiors with a line somewhere in the interior where the two forces balance and the stress is zero. A diagram represents a simplification of the actual conditions for it goes without saying that one cannot in a diagram set forth all the stresses present even in any momentary phase of such a mobile mechanism. Moreover the distribution of forces varies with every variation in position of the elements of the joint.

The capsular ligament most frequently gives way at its lower portion *B*, where tension is a maximum because of the curva-

ture of the head of the humerus and besides at this point the capsule is thinner. Sometimes the capsule is pulled away from the bone at *C* or *A* (avulsion).

LESIONS RESULTING FROM TENSION

1 If the abducting force ceases with a slight tear of the capsule the resulting lesion is a *sprain*.

2 If however the force continues and the capsule gives way the articular surface of the humerus is lifted off the glenoid by leverage about the point of contact of the greater tuberosity with the upper edge of the glenoid as a fulcrum. The head of the humerus is forced out through the rent in the capsule the lateral edges of which tend to make a straight line from *A* to *C*. If now even a light blow be struck on the dorsum of the shaft of the humerus or if longitudinal thrust occurs as in fall on the hand or if simple abduction be continued until the dorsum of the humerus beyond the tuberosity impinges on the acromion or the coracoacromial ligament the acromion or the humerus furnishes a fulcrum and the head of the humerus is lifted off the glenoid and forced out through the rent in the capsule and does locates results.

It is evident that tensile stress of the bone is a maximum at the points of attachment of the ligament—on the humerus at *C* on the scapula at *A*.

3 The humerus may yield to tensile stress in a sure which starts at *C* on the distal side of the attachment of the capsule resulting in the common fact of *full surgical neck fracture* of the humerus (Fig. 454).

4 The capsule may yield to tensile stress at a pending point a little proximal to the point of attachment of the ligament at *A* resulting in *fracture* or less completely *fracture* of the capsule.

LESIONS RESULTING FROM COMPRESSION

If the ligament and their attachments contract around the bone toward the bone may give way to compression.

5 In young subjects the compressive stresses applied by the capsule to the lateral surface of the head of the humerus may

develop shearing stress to which the bone may give way along the epiphyseal line resulting in *epiphyseal separation*.

6 At D by which the greater tuberosity is sheared off and displaced downward along the shaft of the humerus. The periosteum is not torn at the lower edge of the tuberosity but is stripped up from the shaft of the humerus—a matter for consideration in therapy.

Sometime the shearing off of the greater tuberosity is followed by dislocation (Fig. 454) when the fracture of the tuberosity is commonly looked upon as a complication of the dislocation. It may also precede fracture of the surgical neck.

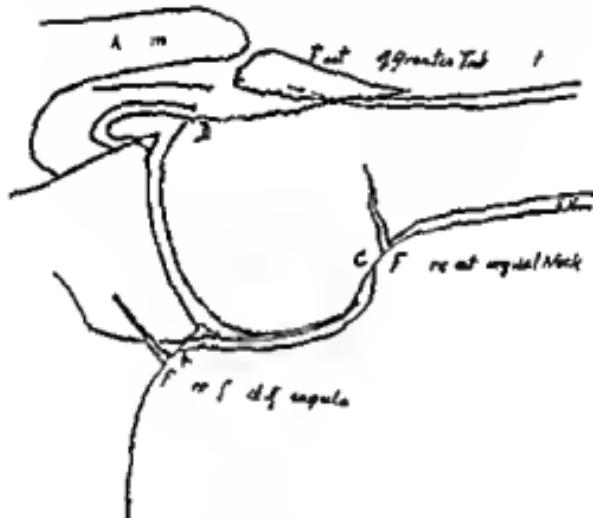


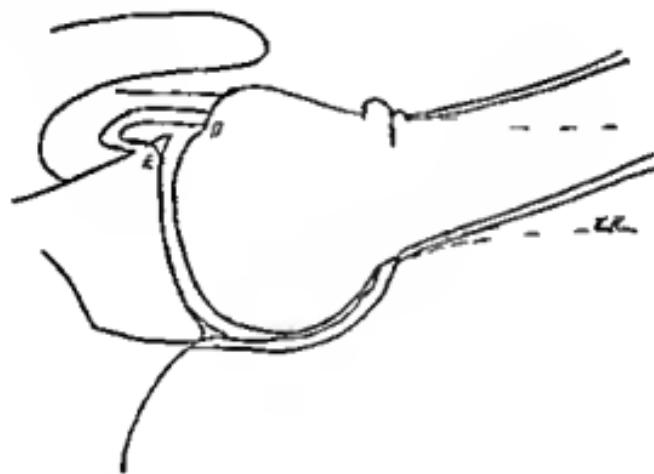
Fig. 454.—Fracture of the greater tuberosity.

7 The upper edge of the glenoid may be damaged by the impact of the greater tuberosity and give way in a crushing fracture (rare).

8 Again in young subjects the humerus resting by its toughened fracture by tension may give way on the opposite side by buckling under the compressive stress at F producing thereby a *buckle fracture of the surgical neck* which bears the same relation to the ordinary fracture of the surgical neck as does the buckle fracture of the radius to Colles fracture (Fig. 455).

Partial fracture is perhaps a better basis for estimation of the direction and nature of the force producing a fracture than complete fracture with its secondary displacements.

The x-ray not infrequently shows diastases which cannot be discovered by ordinary clinical examination. The writer has observed cases of partial chipping off of the greater tuberosity, a fissure entering the humerus at *D* (Fig. 454) fissure of the neck of the capula entering the bone 1 or 2 cm at *A*, fissure entering the surgical neck of the humerus at *C* and buckle_s of the bone in childhood at *F*. It is evident that such fractures can only be produced by tension and that buckling fracture is common in children as indicated.



F-4-B Unfin g cal k/cm

The law of biomechanics states that when movement is resisted, it tends to move in the direction of the resistance. This is known as the law of biomechanics. It applies well to the movement of axial rotation at the joint, such as the hip. Here ten le trass i d eloped by th sh tenun f th el ements f the c pule by tue f th ir bei thr n nt oblique pal directi n. This te il t es i m turn bul ed by imp s f the head of th f mur hum ru a ai t th t b lum leno d respecti ely at th mom nt wh n m ti n t]

The lesions produced by forced motion as in abduction may of course be complicated by additional compression and tensile stress produced by axial rotation which would modify the location and direction of tension fractures and tear in the ligamentous apparatus.

CLINIC OF DR. REXWALD BROWN

COTTAGE HOSPITAL SANTA BARBARA CALIFORNIA

TUBAL TWIN PREGNANCY

THIS young married woman aged thirty two has an acute abdomen. She is a Hindu and as neither she nor her family speak good English it is difficult to get a history. Doctors Henderson and Moffat who saw the patient first yesterday endeavored then to get her into the hospital. They made a tentative diagnosis of ruptured ectopic gestation from the acute violent onset of pelvic pain three weeks previously, the daily continuance of severe crampy pains and a mass in the pelvis. During last night the picture changed to that of an acute abdomen—rigid tender board like—vomiting and now a temperature of 103 F. She has just come into the hospital and we shall open the abdomen at once. Perhaps the trouble may not be ectopic but of infectious origin. However the patient's condition does not warrant further study. We are dealing with an acute surgical abdomen which is sufficient indication for exploration.

We find that the pelvis is filled with an enormous mass of clotted blood reaching well above the pelvic brim. The uterus, tubes and ovaries are embedded in the organizing blood clot. The omentum thickened by the infiltrating blood is spread over the blood mass and adherent to all parts of the pelvic walls and organs. On freeing the adhesions and turning up the omentum we are surprised to find in the center of the blood clot two fetuses. Each is completely formed of an age apparently two months and unattached to a placenta. The fetuses are removed and will be preserved.

Both fallopian tubes are now removed and the abdomen will

be closed. Let us examine the tube. The right one shows marked inflammation but no evidence of a preexisting nevus having been present. The left tube is markedly inflamed, greatly enlarged and thickened near the fimbriated end. The mucosal surface suggests that the ectopic pregnancy was pocketed near the fimbriae and that a tubal abortion fetus membranes and placenta had occurred through the fimbriated end.

The records are not many record of tubal twin pregnancies. Arey in 1923 since which time there is little literature on the subject. He wrote that there were only 30 definitely authenticated cases. Arey's studies in embryology led him however to state that tubal twins occur fifteen times more commonly than the uterine ratio. It is my conviction that records of tubal twinning are not recognized at operation. This is explainable because early rupture before the twin sacs are grossly demonstrable are fairly common and because in many hospitals the relationship between the surgical and pathologic departments is not sufficiently intimate to insure careful examination of removed tube and clots.

It is very generally accepted that the pathologic changes secondary to inflammation in a fallopian tube render possible for the lodgment of the impregnated ovum and its subsequent growth in the wall of the tube. The pathologic changes are very likely to be found in the lumen of the tube of an infection in which they may completely heal. These changes act however as a definite obstruction to the passage of the enlarging fertilized ovum. The fertilizing spermatozoa because of its small size and flexibility extremity had been able to pass the pathologic barrier.

The complete lack of the characteristic tubal inflammation from the onset of the first procedure of abdominal exploration deducts the possibility of multiparity and nulliparity. It is well known that the woman who has had children or who though married yet holds the child never experiences the first year of the first pregnancy in the rectocele. This is the period of time that geographically elapses before the lumen of the fallopian tubes becomes

patent after the infections of the tube which terminate in recovery expend their forces. In multiparous the infections are largely those of streptococcal or staphylococcal strain which enter through the traumata incident to childbirth or abortion. In nulliparae the Neisserian organism is mainly responsible.

The pathologic basis for tubal gestation is very largely also responsible for twinning in the tube (Stockard and Mall). This applies to twins from a single ovum homologous or identical twins. Experiments and observations over many years in the embryologic field have yielded evidence which has permitted the formulation of a theory which though not yet proved is yet an interesting scientific approach to the understanding of the bantering problem of twins and various types of monstrosities.



Fig 456.—Twins

The theory is that the early critical moments in the developmental phases of the fecundated ovum during which are determined the origin of normal or abnormal features or parts. In the conception homologous twins are abnormalities.

These critical moments are due not to hereditary influences but to environmental factors outside the egg. Normal or reduced oxygen supplies are all important. If oxygen environment be wholly adequate normality is assured whereas if there be retarded oxidation at one of the numerous stages of embryonic growth there is a developmental arrest inhibition.

To explain the origin of twins it is assumed that at the moment when a single primitive streak or embryonic axis is about to assert its dominance to evolve a single individual as is typ-

partly nature's purpose in human evolution there is a decreased oxygen supply which slows the normal developmental rate. The single primitive streak loses its position of advantage and there arises another (or more) primitive streak which competes with the other on equal terms. If the streaks become separated widely as they develop twins are the result.

The residuum of pathology which delays the passage of the fertilized ovum through the tube and prevents implantation normally in the uterine mucosa also interferes with adequate oxygen supply to the growing egg. The combination of delay, continued growth and deficient oxygen relations occurs not infrequently at the critical moment which favors twinning.

The patient married at ruptured by a woman with good health.

IMPACTED STONE IN LOWER URETER REMOVED BY INCISION THROUGH POSTERIOR BLADDER WALL

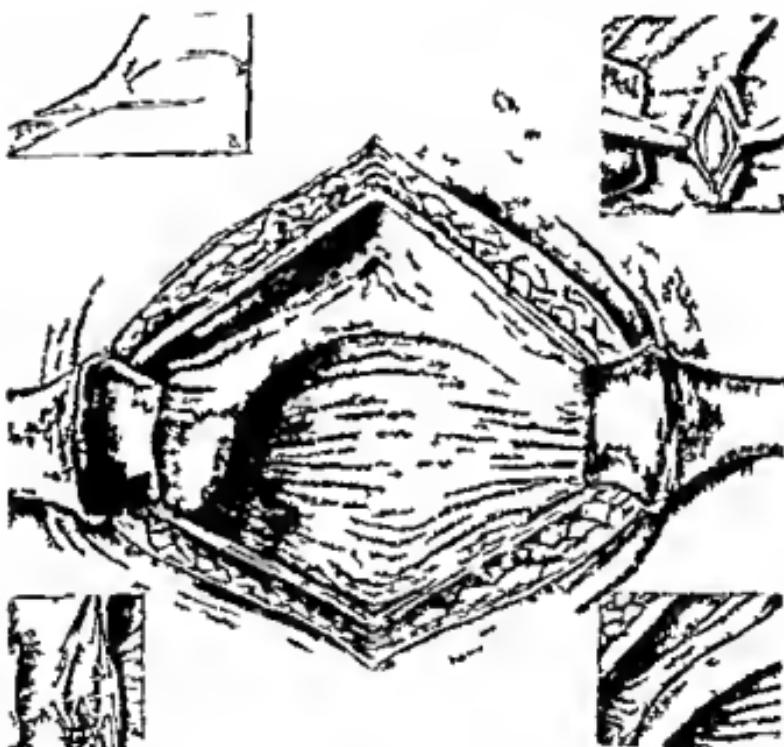
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My associate Dr Irving Wills has cystoscoped the elderly woman and could hardly get a catheter past the left ureteral orifice. He did succeed in passing a filiform whale bone bougie to a point about 3 cm from the orifice where it met an obstruction. The filiform finally passed this obstruction and there was a gush of cloudy urine. A Ray pictures revealed stones in the kidney and a large bullet shaped stone in the lower ureter close to or in the walls of the bladder. Dr Wills has interpreted the joint cystoscopic ureteral and a ray finding as a stricture in the terminal ureter in the wall of the bladder and an impacted stone about 3 cm above the ureteral orifice (Fig 457 a).

Since these examinations were made I have seen the patient in a typical attack. It was truly agonizing and controlled only by large doses of morphine. Despite the risk of which the patient is cognizant she asks that we try to give her relief. We are going to approach the stone through a suprapubic opening into the bladder. This we believe to be less dangerous than doing a nephrectomy and leaving the stone to cause probably continuance of pain and cystitis. Also we believe this bladder approach preferable to a suprapubic incision down to the peritoneum followed by extraperitoneal exposure of the ureter by

peritoneal displacement because of the possibility of a section of the cellular tissue back of the bladder from the infected urine.

Dr Will believes the tone has been impacted and grown in size for several years producing a chronic interstitial urethritis and perineuritis which has obliterated the cellular space between the bladder and the anterior ureteral wall. This would permit urine to enter the ureter without entering the cellular space.



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through the sm f m t po t a h w n i th ite
of F1 45 The bladd r v ll and then th t n ll f th
uite are cied as shon n F 45 b Th y ih tt
each oth a pe t l The t e t 1st I o t th s p

Dr Wills suggests the ureter being strictured just inside the normal ureteral orifice that a new ureteral orifice be made. This we do as follows. A large ureteral catheter is passed into the ureter through the ureteral incision then through the bladder and out through the urethra. The opening in the anterior wall of the ureter and the posterior wall of the bladder are closed about the catheter (Fig. 457 c d). The suprapubic bladder wound is closed about a large tube.

Th pt t ff dm hf m bt t tpt t ft th pe
t Th p pt d b l d l ly Sh l ft tl h pt l t
m th ll t dt z g ght t gth df s m pa
Sh t dt th h pt l w k h gh df tw th dy
p tp b th p p b w d d th p g f f l D
Wll j t coped h df d pe g th t f th bl dd
th l f th cy t t my ca f m wh h p d d t th bl dd h
p m d th t l bd m l w ll Of g t t t
th ll t lt f th t f pe t th ls rvt th tpe od
jt f l se m gf th pl t ly h l d ly nad
t l f ll p p b w d l t pe d d h g d d th
pat t d d ft m

18-83

CLINIC OF DR THOMAS O BURGER

FROM THE SURGICAL CLINIC OF THOMAS O BURGER CLYDE J
O BORNE AND HALL G HOLDER SAN DIEGO CALIFORNIA

THE POOR GYNECOLOGIC RISK

UNFORTUNATELY many gynecologic cases coming to the surgeon for treatment are poor risks for any operative procedure. The many and varied pathologic conditions responsible for these cases are well known and generally recognized. In the face of urgent treatment in spite of prevailing condition what are the factors of major importance in reducing mortality and morbidity? 1. Thorough general examination and correct diagnosis thereby eliminating contraindication to operation or errors in judgment for example avoidance of laparotomy in the active stages of infection in the genital tract.

2. Proper preoperative care which includes (a) rest (b) proper treatment of associated disease (c) maintenance of normal nutrition and water balance up to as near the time of operation as possible (d) psychological management to reduce the emotional hazard (e) supportive measures to increase resistance particularly referring to the use of blood transfusion in the debilitated and anemic from loss of blood toxemia or sepsis.

3. Operation (a) Selection of the anesthetic Will the risk from the particularly morbid condition plus the risk from the anesthetic be least with any form of inhalation anesthesia with associated varying degrees of metabolic upset or with spinal anesthesia in which sequelae are nil? Spinal anesthesia properly administered and controlled is the anesthetic of choice in this type of case. In the proper conduct of these cases there need be no compromised psychic state. Food and fluid pre and postoperatively need not be materially curtailed and thus com-

bined with the practical absence of ileus with the type of anesthetic is a great advantage to the poor risk. One of us recently reported a series of 151 gynecologic cases administered spinal anesthesia with no morbidity or mortality in which ephedrin was successfully used to prevent blood pressure fall. There was no postanesthetic sequelae other than headache which occurred in only 19 percent of cases and in only one later than twenty-four hours. (b) Proper technic involves first standardization of methods, second antisepsis concerning which mercurochrome in skin sterilization and intravaginal application pre- and postoperative has been helpful in diminishing morbidity, third elimination of waiting time for thorough gentleness, fifth judicious choice of operative procedure, sixth the roughest including absolute hemostasis, seventh protection of uncontaminated area from infection, eighth conservation of body heat. All of the above are important in preventing disastrous postoperative complications such as shock, hemorrhage, infarction, thrombosis and injury to surrounding vital structures. (c) The selection of radium when indicated.

4 Postoperative care including (1) rest (2) posture (3) sufficient food and fluid

CASE REPORTS

C I—Mrs T A E b f r t y f d M
 H p l N m b 9 197 h h f m p l f l m p th l bd m
 f th pa t y Se h h g pe g eht b f
 dm h l ca sed h t b d d r v k H b t pa
 dbl dd t bl f m y
 P th l h T l d l se l h f k k f
 ppe d f ll ed f h ll p e d po
 F ml h ry use ly g t
 Ph y l Ex m t —Th m k d m f h k l m
 m mb O bd l xam l t nel m d g
 t th f g b d h bo h ymphy p l p l l xam
 l d t m soc d h th f m l g l
 ! Th b l t l l t f h r v d l d
 l va f h pe m
 Lab r y E m —L h l f h l l ool ll f
 b t h r w s e ga blood d h t l blood
 cell 2 160 000 h bloo t ll 9500 h g l l 21 g D)
 polym sph 1 6 pe cc ll l m p hoc 2 r l g

Lymphoc t 2 pec t Th pt t a t f sed m d t ly d
 m th 00 h l bloody f th 1 ect thod (Sc II)
 Tw dy f ll w g th blood o t h d l bl d ll 2610000 w th
 35 pe t h m g l b (D) Th f ll g d y e d t f
 d e g g 400 ml f h T J y f ll g th t s-
 fu dbl d ll 3610000 48 p t 1 m glob (D) The
 f ll gd p calk t t y d ght salp g ooh ect my
 d d p t th g t 20 mg ca d l mb
 P t t m d n tf 1 ywth t y m pl t p t
 p t e t k g soft d t h f ll w g d y l g d t gth r p dly
 O th dat fd sch g 11/30/27 th w nd h d h l d b y p m o
 th p t e t w f l g t m b y ll d th dbl d ll t t th
 tm 460000 h m g l b 50 p t (D)
 P th l g p o t h d th t r t b e t t f l g i g t d
 fb d

Comment — This case typifies the advantages of blood transfusion in preparation for operation in cases of secondary anemia due to the toxicity from uterine fibroids and secondarily the marked advantage of spinal anesthesia in preventing complications postoperative in a poor risk.

C a II—M J M g d th ty tw yea et d M y H pt l
 11/15/27 th th h f compl t f m t o h g f th p tt m th
 bled g p f sel t t m P t th hr e gh wh h h b th d
 h f th p t y f l d d y ad abl t wok
 P t health U t h d odd se mal 3 a g A za
 f yea go Th d h d b h d st th tt k f a
 d pat th b P h l th th t m
 Phy LF / —A ma k dly m ma t d d h cally
 il ppe gy g d f f m a l fse d L g Th d t
 t i pot t l t p e wth m a y p e t t f i M g al
 t b th p p e lly m l d t h l f t H t g t Abd m
 t l l xam t Sh d m l p a t th d
 gl d g t t po d d d hyj t ph d th
 dbl l f t t l g d d h l f t m th d d gr
 t d t palpat d wa gat N th g d f t ld
 be et d t th se f th m t h g l d e t h
 t t c m lly th t h p t t g lly d b l t t d o it
 po bl f th ymp m Ray xam t f th h t h d
 bl t ral t be l l m t t both p m p e lly th l f
 N rom l gat k g t L b t y pot U g t
 d blood ll 4150000 ht blood cell 5500 h m g l b 80 pe t
 polym ph 1 3 pe t m ll lymph 1 pe t l g
 lymph y 3 pe t phl pe t T t t d k o —
 1 m t t l l t l p l m t be l

Operat U d p l esth g 120 mg ca seco d
 1 mb pace pracer cal h t t my d ppe dect my d
 P th l g port h d h fib ppe d cat ch m t t d
 d m t t P t t m d tf 1 eco ry th t pot perat
 compl cat ga d t gth pdly d d h g d 1 /3/27 d
 h l d by primary ge ral d m b mp d

Comment—The patient could have been most ideally treated with small doses of radium ranging from 200 to 800 millicurie hours to check uterine bleeding but inasmuch as the case was one of charity the necessary expense for the radium could not be met and as the next most suitable treatment was removal of the uterus which was done under spinal anesthesia thereby avoiding the danger of any inhalation anesthetic and avoid pulmonary tuberculosis.

C III—Mrs A P forty, f g t d Scripp M m I
 Hospital th h h f compl t f f pa d t d m l
 bd m t m co pa d m k d d t n f th bd m h
 f lit llf som m th
 P t heal h good F m l h t r mpo t t
 Phy f Ex m t —Sh d mddt g d f m t poo
 d ppa tly h call ll Ge ral phy cal vam t gat
 pt f m ked t d m both l w q d f bd m d
 pel vam t m ked d n d th p se ft m sse
 th d val g th f grapefru P lp h g
 ext m ly pa f l Laborat y port U g blood co h
 mal m t T t t d gn s—b! rat py salpn.
 O April 23 1938 t 1 g p s be m d t p l
 th ia Th pel th t f m dhes d po t
 th m af l m wa lm t mpl h bs cu d b dh b d
 P t d sch ged /6/28 d h led b p n po
 perat mplecat h

Comment—This case bilateral pelvic adhesions with multiple adhesion causing partial intestinal obstruction was most satisfactorily relieved upon removal of the uterus. Because of the perfect relationship between the adherent bowel and the ruptured or contamination and the absence of lead adhesions to intestinal obstruction level with a minimum of time. The usual perfect condition was experienced.

C IV—M B W g th f d Sc pps M m I
 II p 1 Ap 1 18 1938 h h f compl f m h f h pa

th m th hyp m f p g n y f p t th m th Sh h d
be bl t r t y food d l t t l f d d g th l tt pe d
t l m d ual h m t tm th d b e n f l

t ll g th hyp m
P t b lth F r th p a t y pat t h d b e d m h d d
d r w ght wth so t d m k d l t d If d b e d m l l
t eatm t th t mp m t

Phy l E —Sh d g d lt f l m k ll y em
t d t g d dry d p h d wth t h b th p t t l
ly t call ll H d g t b t f s f d g l t d Ch t Th
m p e t e t f k g al t p f b th lu g p e
ss e t p m l At th l l t l a th p t o ll y
l th d f t f t b H t eg t Tl gh th th
bd m l w l th l g d t r u m y b d f t l y p l p t d Pl
m t h t l g d t f th t f m th p g n y
rs soft th r w se g t N m s c l g t
Ray f th h t h th k f l t h l h d wth m y
l f d th d ph gn th ght de g l p p a t l y h g
m dh th y t f g m t f f d th t a l g l
p h w d of ho fib t b l

L b t y E m t —Th h +1 lb mu g g t
pl t sc p g t Blood t h d blood-c ll
5 560 000 wht bl d ll 12 400 h m glol 104 p t l d
95 polymopl l 77 pe t m a l lymph yt 13 p t l g
lymphocyt 5 p t ph l 1 p t t t 1 4 pe t
Op t U d p l th g 0 mg ca se d
l mb p th p t bot d P t p e t co se P t t
mp d pdly ft mpty g f th t r u d th h g h b h d t
d t d l d up p d l p t t mad t f l t y d
h d b g d g g g ht dl

Comment —This case was a poor risk because of her critical condition as a result of acidosis secondary to pernicious vomiting of pregnancy. This combined with her associated pulmonary involvement made spinal anesthesia the anesthesia of choice. Her deranged metabolic state was not made worse or complicated.

C V—M M H g f t y f t d M y H p t l
4/24/28 th h f m p l t f l g w ght d t th l th p a t y
th d bl p l bd m f th p t t m th th
t d p l s e m t h g

P t health good F m ly h t r y importa t

Phy l E m t —Sh l m a k d l y m t d m h
cally ll m k d l g d d l t f m a l H l d e c k g t p t f
m f m m m b L g gat h t g t Abd m

X gat pt f d l q dra t P1 sam t
 h d m k dly h pert ph d d dd n f bl d
 bl ed g lgh t m t Th h d lg m t th d
 fil t d th t th m ld tb m l mg dm pa ful
 Th f d fth m palp t d t d po t
 L h j E —t g t Bl od t R d blood
 ll 34 000 ht bl d-cell 1 000 h gl b 40 pe t (D)
 polym ph l 80 pe m ll lymphoest p ce t l g
 lymphocy ll pe t m ph l g f d t d ll th t f sec l n
 m B p f m m h d pd m d m
 Op t L d p l th 0 mg se d
 1 mb p m d t d d d m t d g g 4000 ml
 h d bleed h ld

Comment—This patient received the balance of her radiation treatment on Aug 1 approximately 1000 million μ hour intramural adjuvant in the early plus a day period. After initial dose she developed much impeded and watery diarrhea which awaited remainder of treatment.

The value of diuretics in the prevention of peritoneal effusion in the early units will be discussed.

CLINIC OF DR HALL G HOLDRL

FROM THE SURGICAL CLINIC OF THOMAS O BURGER CLYDE J
O BORNE AND HALL C HOLDER SAN DIEGO CALIFORNIA

MCARTHUR HERNIORRHAPHY

OPERATIVE procedures employed at the present time for the cure of *inguinal* hernia are far from satisfactory. This is true of the simple indirect *inguinal* hernia and increasingly so of the direct sliding and recurrent *inguinal* hernias. Supportive evidence for this statement may be found in the high percentage of recurrences at the hands of the best operators in the best hos-

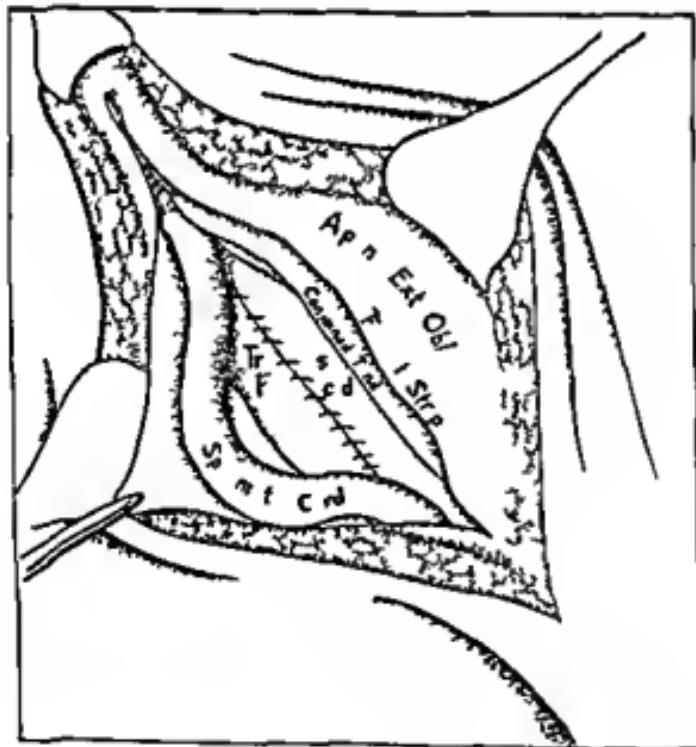


Fig 458.—Show t be tf m It led f t 1 blq H t tl ff sc l t p

pital and clinics. Further evidence against the efficiency of present recognized procedure are the many different modifications advocated in recent years.

The importance as regards satisfactory end result of hatching of the sac and perfect wound healing need not be considered. Reconstruction of the abdominal wall need more thought. Academic points such as obliquity of the inguinal

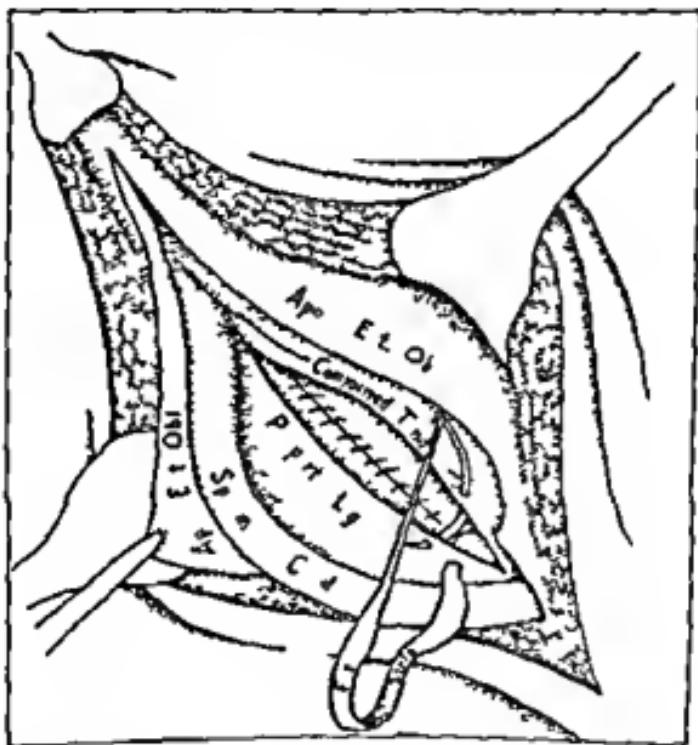


Fig. 49.—App. mat. fasci. ed. d. t. P. part. ligam. t. h. cut. fascial t. b. oad ped. t. base. inf. c. g. k. po. l. gl.

canal valve like action of it wall and position of the cord may be disregarded. The importance of the resection of the transversalis fascia as advocated by Postman and the whole possible is one of the most important step in the repair. But unfortunately in those cases in which this is most important to obtain a repair of this fascia it either cannot be done or it is so attenuated as to be of little value.

Regarding the difference of opinion whether muscle will

unite with fascia—what is the simplest and most efficient plastic operation on the inguinal canal? Because of the nature of conditions in direct inguinal hernias recurrent or even simple indirect inguinal hernias in the obese or those with attenuated musculature where normal relations are altered it is logical that some type of fascial suture repair would maintain more substantial contact between structures if employed

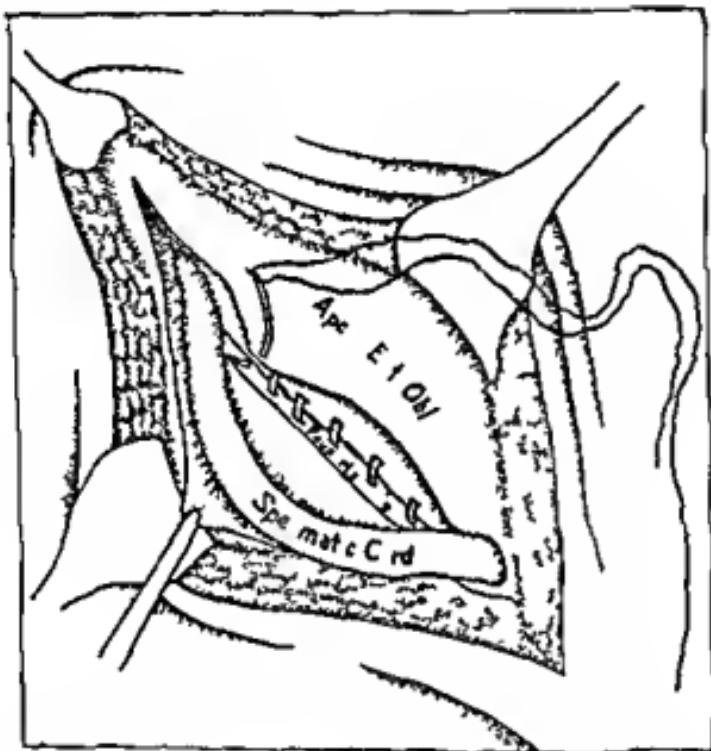


Fig. 460.—Fem. a. v. s. j. d. i. d. t. P. p. t. l. g. m. t.
m. p. t. d. B. g. g. f. pp. mat. f. m. l. l. f. f. t. r. n. l. b. q.
p. o. t. g. l. l. g. m. t.

One of three methods are open to choice (1) The method of E. Wyllis Andrews (2) the use of living sutures according to the method of Gallie or (3) living sutures and repair as advocated by McArthur. Using the method of Andrews consists in sewing the mesial flap of the external oblique aponeurosis to Loupart's ligament and then imbricating the lower flap over this suture line. This method I use routinely on simple indirect

inguinal hernia utilizing in addition to the transversalis fascia Gallie in his method makes use of fascial strips cut from the fascia lata of the thigh. With these sutures he weave a cross closure of the different layers. This procedure is necessary in a certain number of cases especially in large recurrent hernias with attenuated muscle and fascia. By this method heretofore hopeless cases have obtained cures. Its only dis-

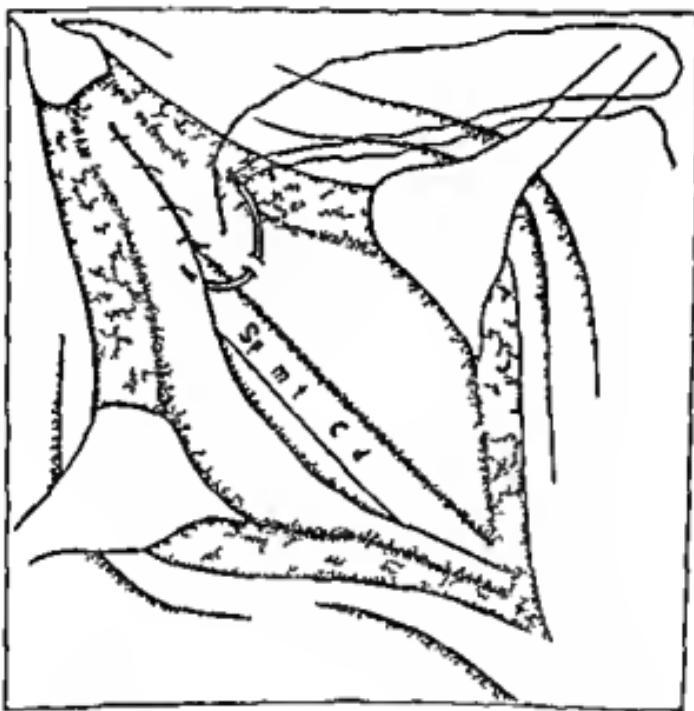


Fig. 461.—R pa compl l h l pp g l b t l leaf f h
l blq po os t f h r

dvant is the length of time required for it con ummation and the necessity for a large incision in the thigh.

The method of McArthur also makes use of long fascial strips. McArthur's operation is similar in many ways. It has the distinct advantage of simplicity without need for extensive and accomplish fully so much the large amount of fascia required. In this patient a strip of fascia is cut from the edge of the medial flap of the

ternal oblique aponeurosis leaving a pedicle base for blood supply. By means of a special instrument or needle the strip is used to approximate the conjoined tendon to Poupart's ligament. The broad pedicle base of the flap supports the lower end of the closure and the weak spot. McArthur used a second fascial strip from the outer flap of the external oblique to unite this with the inner flap. To me this has seemed unnecessary in view of the perfect union of fascia when cleaned of all areolar tissue. Occasionally I use a second strip of fascia from the lateral flap to reinforce the primary line of suture if the first fascial suture is insufficient. The external oblique fascia is then approximated with continuous or interrupted No. 2 chromic catgut sutures. Overlapping is practiced if this is possible without tension; the mesial leaf of the aponeurosis is sutured to Poupart's and the lateral leaf placed over this line of suture thereby obtaining the advantage of an additional layer in the repair. The cord is transplanted in all cases.

CASE REPORTS

C I-F W m 1 g 6 1 3 dm t d t h p t 1 M h
 24 1966 pe t J M h 9 1966 d h g 1 Ap 112 1966

P t III —P t t dm t J t th m d l d th th m
 pt f g l d pa d h J h N th mpt m pt
 pt wh h h d b th d h f ,

Pk t F m t —E t h y gt t t f local dt
 h h h d m h d t d t t g l g th l ft d
 O gh b l g p l d th th f p g t p l p t d l t
 t t th k

Op —I th l g f i d g Th th l ft d d t
 g l t d g b o t l h f m th p e t l c a t Th
 l dh t m a l l t t d m t m h h b
 3 1 Th t dh t t th d th bl dd l
 d Th d m l M l t f f q l t

P d U d t d y g th s h k
 l pa ll t t p t l g m t th l f th p f th p b
 l h p f th l m Th l d b c t a t
 t h t l b l q f s c d h l t t d d d th l l t f
 th g h th m d l l f th t l g Th j l t f d p p a t
 l g t pos e l d l d b b l t d g d s e c t l
 a h m a d h m l pa ll t th d s a d d
 feed f m m l l t l f t b s p e d t t
 d l d e c k l g t t th p e t g N 2 h m c a t g t R
 d d t p o f s t h m p t l d p d b y pp mat t

it ted edges f th t sal f sca h co t sut re f
 \ h m catgut C J dt d a th pp evated t P
 part l g me by mea f pe l trum t eedl A d pod l
 base f th f sc l t p a bta df blood pply d fine re f cem t
 f th w k pot t th l gl Tb f scal t h red
 t t r l th t rupted N 2 h m catgut tu O tre
 tak bo th dt f m 3 h t m l D bl layer pa
 th d w h th t m l blq po by t g th mea l
 fl p t P part be aath th d f g th l f t th
 lat l fl p Sks l ba ta t approxim t d with t
 pt d llw mgut t Dry dressing pjl d p t t d m
 good d

D h g N t - P t mod tf l ec ry Tb d
 h led by p mary ld pa d sympt m Dsch ged h
 l h d j po t pe t

F low- p N t - A th m h d pe od m
 h ed pa b sold th d sympt m ec ce

C II-F T mal g f ty 6 ea d tt dt th hospit
 F bru m 8 19 6 pe ted F bru ty 9 19 6 dd h ged F bruy 26
 19 6

P t III —Whl d g heavy lt m th p t dmss
 p t tec ed rupt both d Of lat h h d j bl pa
 bo h g espec lly g If g Th pat t sed trans

Phy cat E m mal —E set lly gt b f th lcal d
 h h h red mod t d ed bl ld ext gu lh

Oper t —P th l g f d gs Th both fca d a
 gu lsa h right be g lag d ca g loop f m ll t
 d dh t m m h h a l d d Th ght d
 h d m all a ost Th m lat f good q l y

P ood Sam tech both d d ld Case I

D h g N t - P t t d l ped p rul b h wh h m
gl l y l ed p d y tm d tm Dsch g d f stee th
po t pe t e dy th w dh l d by p mary pa sold p
f se gh soc d wi h b h

F low- p N t - T ea l pe t h d
mpl l f f sup ms

Ca III-A J mal g f ty t y dm l F bruy 18
 19 6 pe d F bruy 19 19 6 dsch g d M h 6 19 r

P t III —P t h ced l g p l f gr h
 soci ed sa ll g f l f se t lsa f pa m h Th m h
 sc m h bee gr d lly g l h mbe po
 th m ss l d tl

Phy t E m t —U importat b f p se f t g l f
 sc l d ec gu lh m
Ope t —P h l g eal f l g O h l l d h d ec
 gu lsa ex d g d n t h sc t m Th sa ta d

d bl m t f dh t m t m d l f m ll t t whch
w ly d bl Th t dh tt th d th d m l
d th m lt f
P d Th t d t l d d C I
D h g N t -U tf l se w dh l g by p may
t th m d th po t pe t dy pt td h g d fift th
po t pe t dy wth mpl t R p sold
Flow p N t -Th pat t fill df ly m th b t
t th d f th t m pa ld wth t d f

C s IV-A H m l g fifty 3 dm tt d F bru ry 8 1926
pe t d F bru ry 26 19 6 d h ged M h 15 1926

P t III s -P t t dm tt dt g t ry d wth h f
mpl t ff q y l t wh h f dt be d ry t
ld t t fth p t th d h ytt Aft t tm t
f th t ct h h d i h h b l t l pt t td Th h
th ght w ca d by th t g so td th m t t Of lt
h h d g b g dw t b th g h l t d g

P t H t y -M t d p t 1916 typh d 1895

Phy l E m t -E m at by th g t ry d
ld fid g t d b R t l b t ytt ld g bl d
h ty mal P t t p se t d bit ld th t
both g l g tb l st

Op t -P th l g f d g Th b th d d t
gu l sa h h dh tt th dg t t O th
l ft desa ta d m t m d f p f ll t t Th d
mal d th m lt fg dq l t y

P d Th t d se bed d C a I

D h g N t -P t t ry tf l w dh l db p
mry t t th po t pe t dy t f b d th f t th
dy R p sold pat tf l ll dh compl t

Flow p N t -At th d f 3 th p f m b th
d th pat th h d t f ympt d pl t lat
t h h lth gh h ll mpl ff q ey f t

C V-H H m l g fifty yea dm tt d M y 4 19 6 pe t d
M y 7 1926 d sch g d M y 20 19 6

P t III -l t th b l t bl pt f th p t ght
m tl W lk g l st g t ca light p th
gh gu l g

Ph l E m t -N gat b t f th loc l dt wh h
l m d dh t th ght gu l g t g
th palpat lth pgat t rey l t l t th eck f th sa Th
t l i t l g l gs mak dl l g d

Op t -P th l g f d g Th th ght d d
gu l t g m a l b t t d dh t m t m Th
d l d th m sc l t ff q l t y

Loc d Th t d t l d d C se I

D h g N t -All t th se h post pe t l y Th

and our 1st year back we continue our 1st year and we will be approximately 2 years apart to us. We have been able to maintain our knowledge in our field of study from our research for "work" & believeable. The subjects we studied were some which concerned the "diseases" of man (which we take here as the "parts" studies). Dr. Elmer was the one who taught the course which I took, he was a man about 40 years old, and during the first term he did not teach us much about the "diseases" of man. He did not do so well in his class.

Dr. W. H. Price was another teacher. He took our knowledge up to year and a half. Dr. Price has not discontinued.

For 1st year we studied the "parts" of man - namely the head and the body of the human organism.

Car. II-F¹ our 2nd year we had our 2nd F year 1st year SF year 9-12 and Dr. Charles F. Hart² 1st

Dr. Charles F. Hart² taught us much more than we were taught in the 1st year. He had knowledge and it was excellent. He had some of the best students in the class.

P and E are 2nd year students. They had some of the best students in the class.

Car. III-F¹ our 3rd year we had our 3rd F year 1st year SF year 9-12 and Charles F. Hart² 1st year. The examinations of our year

Proctored by either of both sides as detailed in Car. I.

Dr. W. H. Price covered parts function which was the last part of our 3rd year. Dr. Charles F. Hart² proctored our 3rd year. In recent times, reported as only one student has been proctored.

Car. IV-F¹ two years after completed our 4th year and we took

Car. III-L¹ 1st year from two sides. 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pe t d Sept mb 12 1926 lch g 14 pt mbe 26 196
P t III —R pt ght lf th p tf y th ll g
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t d tsu th gh l
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d h h mal ry h pe t Th m sc l t a good
Proced Sam d 1 J C set
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d h led by l wa II t be g m ed th se h po
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Phy lE m t —C lphy et m l d g l bo
try d y h k l l d th g b th l l d Exam
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Op ; —P th l g 6 d g O h l f l h l g d
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P d S m l t l d C set
D h g & —P t t l f l W d h led
b p mary ll m l h po t d d h g d
h me f urt h po pe d y f l g ll O g pa f m
F llo w p & t —E m g h m h f p h
d f ec C mpl l f t m g mp m

C VIII—J J l g th 3 gh y dm t d O be 2
19 pe ed O be 4 196 d h g 10 be 19 196
P nd III —F h p a l y pa h be bo h d w h
rupt b ll d P t oc p t h v y l f g d f

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 mf t p lly t g F th p ty bt t e t p t
 h ppea df th f t m tt g l lyl t
 P t H Rh—Al y good h hd y ll
 Phy l E m t —W ld l p d dd g l m l lt w th
 g t f d g ptf th local dt l th l ft g l g
 th p m th t wh h t g Th
 f pg t rt palpated lt lt th k f th h l
 Th t l d t t g l g m l dly d t t d Imp
 l ft d t g l h
 Ope t —l th l g f d g O th l lt d th w d t sa
 th bse t p t dlt l ll th be g pl d by th gm d
 l Th gm d d bly d l t d d mpt l y fill d th
 Th sa t lh tt gut d th d g trt Th
 t mal d th m lt fg dq lty Th dt p
 set th so-cld l d g h
 P d Th t dm l w ll f th w m i d
 th p t l d f t l d R p th d dt l d C l
 D / g V t —P t t l sc tf l th w d
 b l d b y p m a r v th t ll t w m d th th p t
 pe t dy d th p t t l sc g d h m th f et th p o t p e t
 dy R pa l d w th mpt m mpt t
 Fill s p M f —P t t t t l f th p t f t n m th
 N d f t f y m p t m t p a t m h m
 p d

Summary and Conclusions—A total of 10 McArthur herniorrhaphies were done on 8 patients. Among this number were 5 cases of direct inguinal hernia 2 presenting bilateral involvement. One patient had a direct sac in which the posterior and lateral peritoneal wall were represented by dilated sigmoid colons a so called sliding hernia. Two large indirect inguinal hernias with scrotal sacs complete the series.

It is justly recognized that the above type of inguinal hernia represent the most difficult in which to obtain satisfactory results.

A modified McArthur herniorrhaphy technic was employed in each instance. Definite cure was obtained in every case as shown by follow up observations one to two years after operation.

This technically simple facial suture procedure applicable to a wide range of difficult hernias merits more consideration than heretofore it has obtained.

CLINIC OF DR. CLYDE J. OSBORNE

FROM THE SURGICAL CLINIC OF THOMAS O. BURGER, CLYDE J.
OSBORNE AND HILL G. HOLDER, SAN DIEGO, CALIFORNIA

CARCINOMA OF THE SIGMOID COLON REPORT OF A CASE WITH TREATMENT

J R male m tpa k tyy f g t dth M yH pt 1
M y 11 1927 E ptf mpl t sh o h dte y p t
d wh h f h t d t h path lth good C
tpt h h f mpl tf th p ty g ty nd
f th p t th m th h db t m attm s lt t g th d
h D gth tm df to h b pa st df md tool bb n
lk h t Th w so t d mpl t fl t d t la h
d pa d th lgs th 2 po d 1 f ght

Physical examination showed an apparently well nourished elderly male not acutely ill. The cardiovascular system was well within normal limits. The chest presented no positive findings. Careful abdominal examination evidenced no palpable tumors or areas of tenderness. A definite right indirect inguinal hernia and moderately enlarged soft and symmetric prostate were palpated. The 18 inch sigmoid scope was passed with difficulty due to a severe irritation of the rectum as a result of frequent enemas but nothing, except this condition and a very much dilated rectum was visualized.

Laboratory examinations showed the urine to be normal, the blood count showed red blood cells 4490,000 white blood cell 5,000 hemoglobin 80 per cent differential count being normal. The Wassermann was negative. X-ray examination with the barium enema showed a point of definite obstruction with marked filling defect at the sigmoid flexure. Barium given for a gastrointestinal series eight days before remained in the descending colon in spite of frequent cathartics.

In view of the clinical and x-ray findings a diagnosis of malignancy of the sigmoid colon was made and operation advised.

Operative Procedure—Operation May 17, 1937. General condition of the patient good. Temperature 98 F, pulse 80, respirations 20. Under ether anesthesia a 6 inch lower left piramidal incision was made. The liver did not show visible



Fig. 46.—B m bef pe h g m d g t d fill g
d feet h gm d l

of metastasis were found palpable in the patient group of 15 mesenteric nodes. Two lymph nodes were palpable in the mesentomodiolothecum glandular fatty. The growth occupied the lumen of the sigmoid colon and null in arrangement and produced obstruction throughout the part of

scarcely admitting the finger tip. The pelvic colon was not adherent to the posterior pelvic wall or coils of small intestine. The sigmoid proximal to the growth was considerably dilated with slightly thickened walls.

It was noted that the growth could be removed including a sufficient amount of normal sigmoid above and below without



Fig 463-B

m t k
l n t r b l l

g p

N t

interrupting the blood supply of the upper rectum. In view of this the sigmoid arteries with the upper marginal branch were ligated with the idea of excising the sigmoid sufficiently on both sides of the growth. The lower third of the descending colon and sigmoid were mobilized in the usual way. Having thus effected

a good exposure of the sigmoid the meso sigmoid in apposition with growth cut within the confines of the ligatured vessel and the field of operation packed off well in all directions. The sigmoid was clamped above the graft with Mayo's clamps removing 8 inches of the sigmoid with the cautery. Approximation of the cut ends of the sigmoid was easily accomplished. The proximal sigmoid was clamped with an intestinal clamp and



Fig. 464.—(1 sec. h po f h b t d proximal
1 (M. m. b Abd m 1 Ope 4 h d)

the proximal clamp removed steadily through and through all for cep. The distal cut end of the sigmoid was packed through all forceps and the proximal clamp like a crimped All-glass tube with little or no airtight though the intestinal muscle throughout the rectum. The proximal end of the rubber tube was inserted into the proximal end of the sigmoid for a distance of 4 cm. The stool to be absorbed is placed by single

No 2 chromic catgut suture passed through all coats of the proximal loop. Fracture on the rectal tube protruding from the anus was now made sufficient to allow the proximal cut end of sigmoid to be drawn within the distal segment producing an intussusception for a distance of 15 to 2 cm. To effect an anastomosis a double row of interrupted No 0 chromic catgut

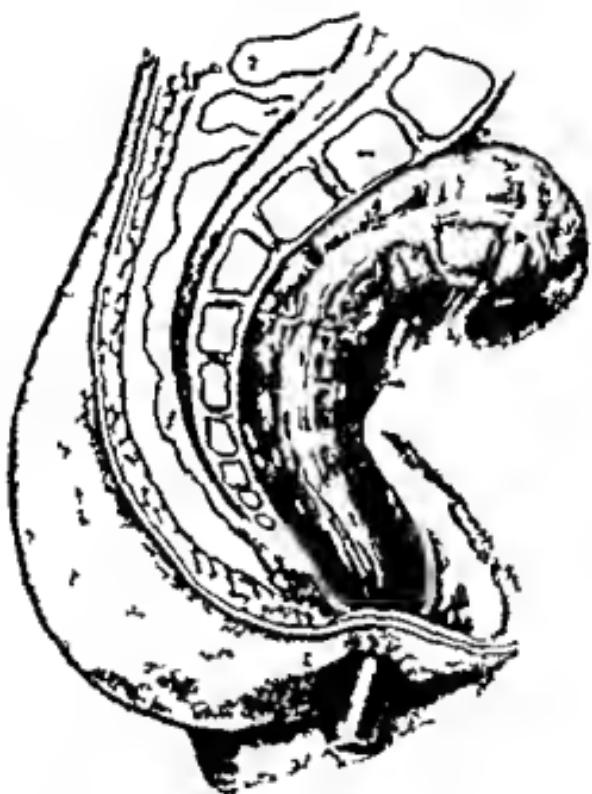


Fig. 465—S t 1 g t m m p l t d t po t f t b
(M h Abd m 1 Ope t 4th d)

sutures were placed with less difficulty than anticipated. All raw areas remaining after mobilizing the colon and the cut ends of the meso colon were carefully covered. The peritoneum was then brought down and sutured completely around the site of anastomosis. Abdomen drained with Penrose tubes above the site of anastomosis.

Pathologic Report—The specimen represents about 8 inches

of the sigmoid colon containing in the mudportion a firm indurated mass in a lumen 4 inches in diameter. The gut proximal and distal to the growth is markedly dilated. On section the neoplasm is of homogeneous consistency producing an irregular constriction of the lumen so that a lead pencil can with difficulty be introduced. Microscopic section shows the characteristic structure of sigmoid carcinoma.

Convalescence was uneventful. The fluid balance was carefully maintained the first postoperative day. The abdominal drain was completely removed the second postoperative day. The rectal tube on the ninth. The patient was discharged the fifteenth day postop with a completely healed wound feeling well and having regular bowel movements without discomfort and eating a high caloric low residue diet without difficulty. During the past year the patient has gained 40 pounds in weight feeling very well and is now unlimited in diet. The bowel is regular without catharsis. On May 20, 1948 one year after operation the abdomen had the rectum and colon to be regular in outline and without evidence of infiltration. The lumen was normal size and without evidence of stricture.

Comments.—The case presented is a comparatively simple one to illustrate the most physiologic result. It is realized that it is applicable in that percent of cases occurring in the sigmoid colon that may be freely mobilized where because of obstruction the entire length has not been entirely impeded. If so able the operation can usually be accomplished without enrou plication or traction. The individual intestinal loops will be牵涉 during operation and by the loss of too much blood be the condition for firm anastomosis. Protection of the tubular lumen is best established by drainage of the intestinal lumen and protection of the lumen from the air. An air trap procedure which eliminates the air from the dependent limb is incidental to a surgical maneuver but still important.

CLINIC OF DR S L CALDBICK

EVERETT CLINIC EVERETT WASHINGTON

TWO CASES OF VISCERAL FISTULA TREATED WITHOUT SECONDARY OPERATION

C I-R C Am ca t ld g th ty sea dm tt d
t th h pt l \ mbe 3 19 7 m g s H h d h d ltl
so t m hf se lm th t th dg t tt t T h
bf dm h d dd tt l f k f lk p th ppe
bd m mpa db mpt m f e h l H se th m
ise t t t th h pt l
Th f mly l t y s po ta t
H h dth l t f t f h dth J I ph t my 19 3

Examination showed a fairly well developed and nourished adult white male who exhibited all of the cardinal signs of severe shock.

The head and neck were normal. The heart was well within normal limits and regular and the lung fields were clear. The abdomen was scaphoid and showed board like rigidity throughout. Tenderness was everywhere extreme but particularly marked in the upper quadrants. None of the viscera were palpable and no tumor mass could be made out. There was a well healed surgical scar in the right loin. There were no other important physical findings. The urine showed a trace of albumin and a few broken hyaline casts. The leukocyte count was 14,000 with 81 per cent of polymorphonuclears.

The diagnosis of a perforated peptic ulcer was made and the abdomen opened under ether anesthesia. A perforation through a large indurated ulcer on the anterior wall of the stomach near the pylorus was easily demonstrated. The ulcer was excised after the manner of Judd and the wound closed in three layers. The gall bladder and appendix which were also chronically diseased and very adherent to surrounding structures were removed.

in the usual manner and one Penrose drain was inserted at the site of the gall bladder. During the operation he received 2000 cc of physiologic saline by subpectoral infusion and he was returned to his room in better condition than when he was taken to the operating room. From the first he was a very difficult patient to control. Forbidden fluids by mouth he drained the contents of his ice cap the night after operation and on the fourth postoperative day eluded his nurse crossed the hall to the lavatory and drank a large quantity of water which was shortly afterward discharged through the abdominal wound. During the following eight days nothing was withheld by mouth. He was given 1000 cc of 10 per cent glucose solution intravenously twice daily and 2000 cc of physiologic saline by subpectoral infusion once each day. His condition remained satisfactory and on the twelfth postoperative day small feeds at two hour intervals were instituted. These were gradually increased until the twenty-fifth day when he received a small soft diet. He was discharged on the thirtieth day in excellent condition with the wound completely healed.

C II-A M h Am ca h g ty se E
 t d th h p l J 13 19 6 h mpla f pg d s
 ft th d t Th pa h d l t meal t b
 t g f p rt l t l flood l h gh h h d t ca
 f l t i hef pa tak u g f som m A p ly h
 h d tt k f se pg pa l g f h df ll d by
 som j d 1 th m h b f m g h h p l h b d t
 b 15 po d gh b d ed pe ll t g t th k
 d h d b b h d b pru Th h d b ta l da k
 th mal d th tool l gh l d
 Th f m ly h t ry mpo
 H h l ypl df t h g f N h se ll ss d
 pe t

I am at this moment extremely well and in what undoubted weight and manifestly ill. The skin and claws were definitely affected.

The head and neck showed nothing of importance. The heart was silent, the lungs full of rales. The abdomen with the soft walls

The liver edge was palpated 2 fingerbreadths below the costal margin and the spleen was not felt.

There was considerable tenderness on pressure over the gall bladder and about McBurney point but no definite tumor mass could be made out. There were no other significant physical findings. The laboratory examinations were unimportant except for trace of bile in the urine. The blood Wassermann was negative.

x Rays of the gall bladder area twelve hours after ingestion of the dye were negative.

Based upon the history and physical finding in this case the diagnosis of chronic cholecystitis with cholelithiasis and stone in the common duct was made and on June 16th abdominal section was performed. On opening the abdomen a firm irregular mass was felt in the gall bladder area which upon separation of many adhesions between the gall bladder and surrounding viscera was found to be the common duct filled with stones. The gall bladder itself was shrunken thick walled and contained very little bile. The stomach and duodenum were normal except where adherent. The common duct was incised and one stone the size of a small egg and many smaller stones were removed. The common duct was closed in two layers and the gall bladder drained in the usual manner. A small perforation in the duodenum resulting from the separation of adhesions was closed with a purse string suture and a cigarette drain inserted in that area. The patient was returned to the ward in good condition. His convalescence for two days was uneventful. On the third postoperative day there was a profuse discharge of fecal matter and undigested food through the incision. Parenteral alimentation daily intravenous infusions of 10 per cent glucose solution and subpectoral infusions of physiological saline were undertaken as supportive measures. On the fifteenth postoperative day he was allowed a liquid diet and on the twentieth day a light diet. He was discharged by wheel chair on the thirty fifth day after operation in excellent condition. A small amount of bile was still draining from the wound but there was no discharge of intestinal contents.

Comment—I present these 2 cases of visceral fistulae after abdominal section with the idea of emphasizing the importance and the entire practicability of conservative treatment in cases of this sort. In neither case did the patient's condition justify a secondary operation and it is my belief that such a procedure would surely have resulted fatally. The ease with which intravenous nutrition may be carried out and the entirely satisfactory results obtained through its use should certainly commend it to the attention of every conservative surgeon.

Both of the patients have been seen frequently since last at the hospital and at the present writing remain quite well.

TWO CASES OF PERSISTENT OMPHALOMESENTERIC DUCT

C I-B by W g ght 13 ht m1 f t f h lthy pa t g B th ght 9 po d 9 1 se t ght 9 po d N mal b th f m g o 3 g p mp Th mbl 1 d p t d th f thd 3 st L th d th fifth d y th w p f d ch g ff 1 m t 1 th gh th mbl lth gh th b 1 h d m d t lly th p d F ll g th th ho 1 t dt po th t t ltm d ly th gh th mbl al fit 1 m g b t ltl by ect m F 1 fth hldt g ght lth gh th m th h d b d fmlk t t d gcalm t lse th pers t t mph l m se t d t h h too l g lbe f 1 h t t g m th d t t

Operation was performed under ether anesthesia. The umbilicus was carefully disinfected and walled off with drapes. An incision 1 inch long was made laterally to it and the rectus fibers retracted laterally. On opening the peritoneum a duct 1 inch long and 1 inch in diameter connecting the ileum with the umbilicus was disclosed. It was ligated close to the bowel and at a point about 1 cm distally and divided by cautery. The stump was inverted by a purse string suture and the abdomen closed in layers. The wound was sealed with collodion. The umbilicus was then exposed and with a small Kelly forceps the duct was caught and everted in the manner of turning out a glove finger ligated and trimmed off. A small dressing was applied.

The child made an uneventful convalescence. Food was withheld for twenty four hours the child being then returned to the breast. The bowels moved daily without aid. The infant was taken from the hospital five days later in excellent condition with the wound clean and fairly well healed.

C II-M A M ht Am h se f g th ty t 3 red th h pt 1 M h 4 1928 th mpl t f ec rr g tt k f pa h l bd m Th f t tt k rr gf rt 3 rs bef h d bee diagn d t ppe d t d th ppe d h d b m d

A mil t k i m th lt i th fill it
 al f th t moth Th p fw y local d th lo er
 bl m th ght d d f l lk h ac soc i
 th m g ll t g f mth tt l h
 Th p tpe so lh rva dth f mly h t importa E
 m t h i th pool d lpe l dpool y h d d lt h
 f mal t cl ll Th h i l k mal Th heart h ed
 l g m t g l ty lth l lea Th bdom was
 seph i h th soft ll N f th sc palpabl d
 d s t t m masse ld be mad t Th w t d mess b
 m sel p m h l bd m pe nally th ght i Th
 g o ry t m l m l
 t bo t ry xam t f th ll od d h i bo h to be
 mal Th blood W m g t
 G to test l st b m m l h ed b smal
 l f th h t ry J tl b f t bd m m l path l m
 d m t bl b d g f po t t dh p d g
 p rial t t l b f h pp d l t th Meek l d
 l m m be look d f) maJ b m so t D G d so

On March 5 1978 bd mi al e tion wa p formed The
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 cecum and ileum we then examined nd at a point about 18
 inches above the cecum a thick b nl in app a ance not unlike
 arrowed b el wa sou d netting the l um wth the um
 bl cus Th wa free d from dh si n lmp d clo e to th
 bow l lig t d divided and the stump n ted The band f
 bowel wa th n traced t the umb l ic and s d On bein
 ope d it w found to h patent The p t i nt m de an un
 e entful re o ry d lft th h pt l n the twelfth p t
 oper tive dy in go dco lt n

Comment—These 2 case x pr nt d nt e tin
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 me nte stell ne duct In the c f th nt nt th diag
 n of c u e p e ent dn diff cultie th nly pu t n n
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 a e The ec n i c eb ngs p g th mp t n f r f l
 xl at on t lap rotomy odd rth t the p t nt m y lat be
 spa d the d comf rt a d th pe t th humilat n t u h
 an o r ht

CLINIC OF DR ARTHUR B CECIL

HOSPITAL OF THE GOOD SAMARITAN LOS ANGELES

TREATMENT OF A CASE OF MALE HYPOSPADIAS

R C L A g 1 Chld H pt l \ 2864
B F b r 12 1916 Adm tt d t th Chld H pt l s p-
t mb 14 1920 Cmpl t M If m t f pe d M th t ted
hld t df m op g f t fth t m T th hll
l g d ll F th d M th l g dw ll Chld f ll t m E
m t h ed w ll h d dw ll d l p d hld pt f d
f mty f th g tal Th pe u f dt b h plv rv dd n



Fig 466

d d h ld th b t g fb l d Th p p l k g
th d f t hood lk b Th p t really t m
l th t t l ld t be p lpated l th pc m th lk
po h th pe g f th th gh b h th hll d d
(See Fig 466) Th hld h pe f t t l l t Bl d d

Op. no N. I. D is f F b Band f Corr. t o C o r
tur f P m — Eth eth m W th th pe p ll d p d tra er

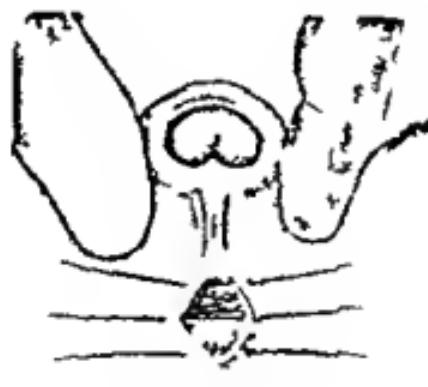


Fig. 46A

Fig. 46B

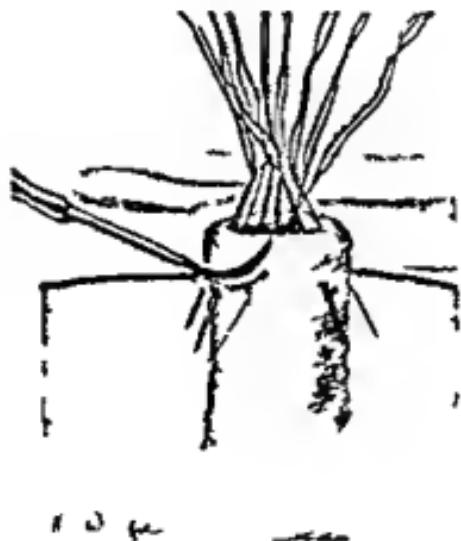
d	r	t	mod	ss th	k	f	fib	d	h	h	ld	w	d
H	k	M k u l	A f	l s t	b o d	ll b l e t	p o	b	b	k			l s e d
						(See Fig.	46-469						

Op t n N 2 Cir um and Pl u F rm to f U th f m
F skin—Th h ld , ld W dmtt ! M h 2 1925



Fig. 469

Eth th Th h Jdf k p ll f s m d d d t
f it t th 0 d 6 11 t ht t t 1 dl



1540

passed th gh th l f m th t d (See Fig 40) Th
 f k a pa t ly m dl ped l th g h th f en
 ld t rally be (Se Fig 41) Th f km w pe d dsutered

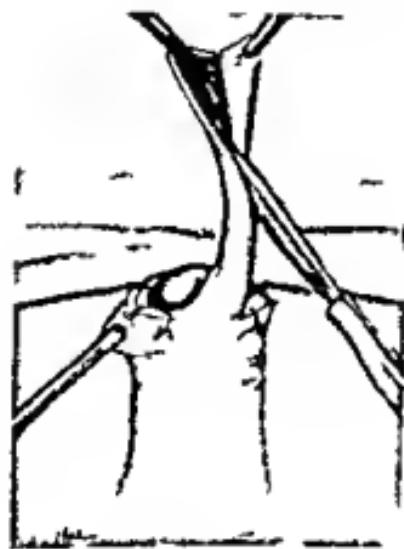


Fig 471

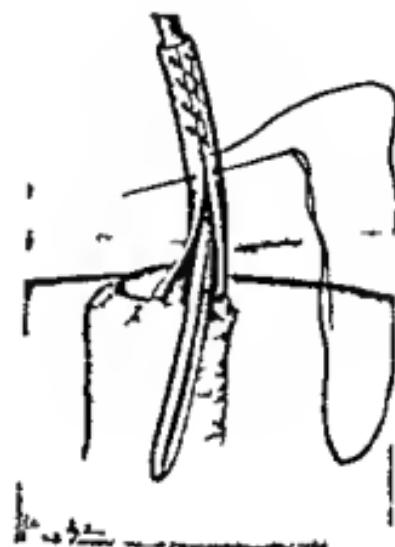


Fig 4

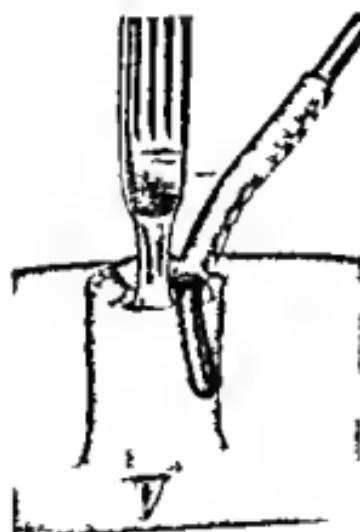


Fig 473

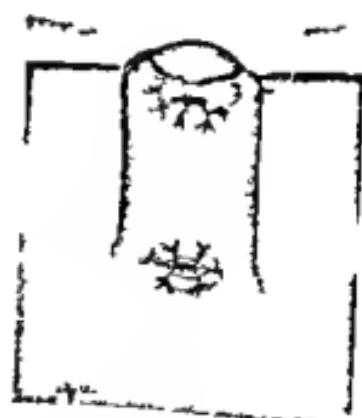


Fig 42

bo t N 14 rubbe cath lea g d f h l g i h t
 h li might ld po th ea h h th ca h d f esk
 p bled d h k f th d m f h pe (Se Fig 42 473)

Th m pl t f th gr ft h n Fg 474 Th k g ft took
pe f tly

Op rati n N 3 Sking aft f m th Th ght Form U ethr 1 Can 1
Aft th M thod f N J d (M h 31 19 7) — A h g l fl p
f k w m df m sp ct f m th ght th gm g bo t
10 by 4 m Th f p f k w t d bo t N 10 soft bb r cath
t d th t b l g ft w t d d b th th k f th p l
th t d g f m th g f th p mal port f th f esk
g ft f d t f pp n tly 10 m Th g ft d d t mt l gh
t b t pp tly b bed t d d t p d l d th g
f t h th hld pe ted by H gn t h J r
13 1928

Op at n No 4 H g Sku fl p Te hn (J 13 1928) —
Child w tw l M Th t g f th i c ll h
Fg 475-479 th t d pt i e r l l d l l h l



Fig 475

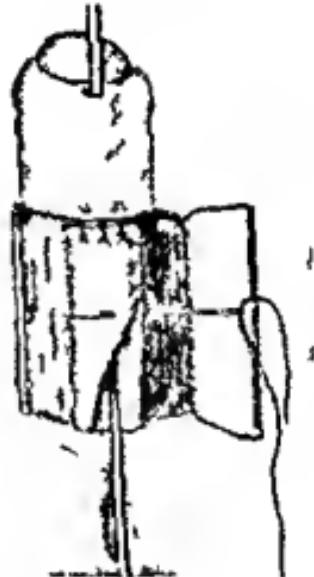


Fig 476

ed f l g p N 00 catg t d f th d pe t d ll
tay t f ll N difficulty t d t m g th
wly f m d th th th h b h d p ly bee f h d
f m h f l Th graft took pe f tly d t th th lea l
a th lt t f g f m th gl t th 2 m f th hypo pad
pe g th pe m

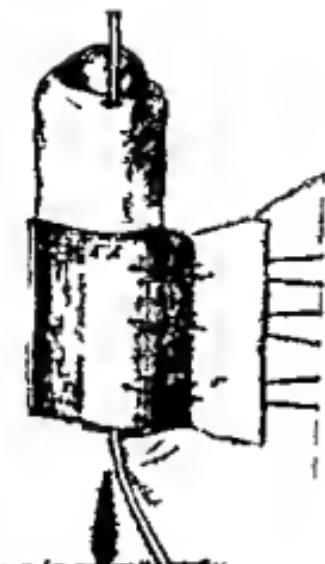


Fig. 477



Fig. 478



Op t N 5 S p pub cD in g Pl tu Op t P m m
 f th C impl t f Ur thr in P m al Hyp padia (M h 27 1928) —

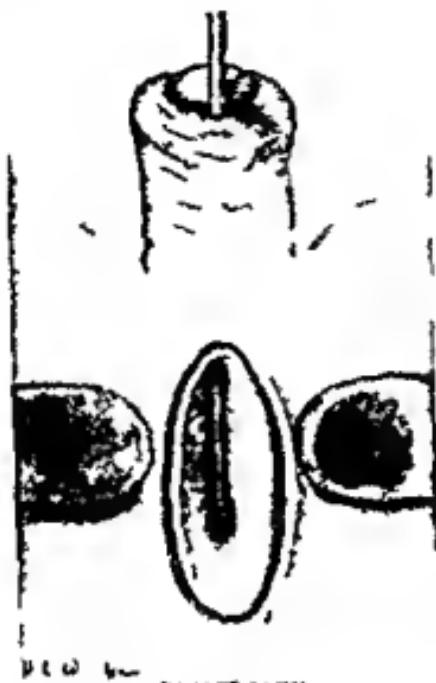


Fig 480

S p p b d g T b th t t ed bo t so d h w in
 Fgs 480-482 N 00 catgut d f th d p t d lk



Fig 481

f th k t Th pl t pe t not k p e f c t l y d th ood
 lt bta ed d t th bsol t co t w th g f th p
 p b dra g t b by f t se I d th f th m t m

po t t f t th g f th case It h be ggested ha
 pl t pe t th b h ld t b d rt k t1th pa
 ld gh t pp t th b-sol t ects ty f perf ct ca f th
 d g t be th f i t t f th th Th t ll
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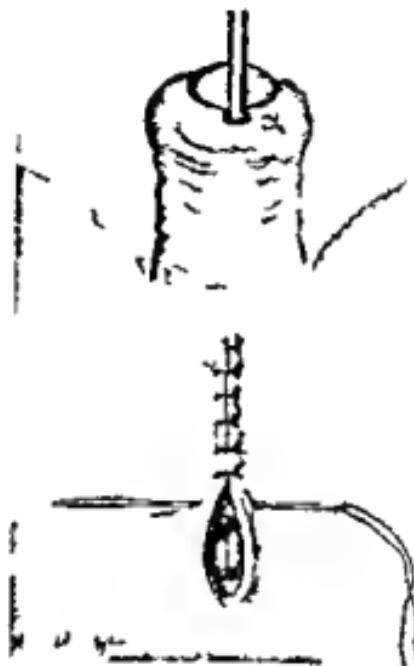


Fig 4

R ult f Pl sti Op t f th Cur f C 28642—Th hld
 d h ged f m th h p 1 Ap 119 19 8 t h h m th p
 p b d pe m 1 d 1 ed A D 14 ca h H b p ssed
 t th bl dd b gh h m d th V h e IP
 m t ly t m th f hld dsch g i h t m l
 f h

TREATMENT OF A CASE OF MALE EPISPADIAS

L G L A g I Ch II H pt I
 O J S 1922 th dm tt d t th L A g I Ch II
 H pt I boy f r y ld h b th h d h d co t t d bbl g
 fu f m p g b l th ymphy t the oot f th p Th
 1d f p d f d d t b r th w gh 17 $\frac{1}{2}$ po d H w
 D h d d ll dev l ped
 H g 1 physical exam t g t pt f th lf m
 t h h l wll wd sc l t y u Th p b bo w c j lt g th
 by fb b d 3 m d m t Th th gh t c d t d



Fig 493

At th oot f th pe pe g th gh h h ld lm t
 se t h l ttl f g lf m wh h th t t d l bl g f
 Th p t t d lt l l pl y i d po th l bd m l
 ll l fl tt ed d l y d th th l ea l
 t b pe O l f th f m a k d d d t
 (S F g 483 484) Th l mal d th th cr t m
 Th h ed light ce f ll m l f p s-cell The l blood
 m l



Fig. 44

Oper. No. 1 Specimen Cyttomyia R. pur. f. Internal V. cal.
 Sphincter (J. 919) — Middle Bl. dd. f. d. be
 both f. al. t. Th. m. l. cat. ph. d. ly. d. l. t. d.
 A. t. mp. mad. tgh. h. l. cat. ph. by d. d. g.
 moo shaped pec. f. m. m. mb. f. m. h. l. l. d. po.
 will f. h. t. m. l. re. h. ral. f. d. b. g. Th. p. o. c. e. d. t. g. h.
 m. l. cal. ph. Th. bl. dd. l. sed. p. f. prop. b.
 dra. get. be.
 Th. lt. f. h. p. o. c. e. a. ll. r. th. l. ss. Th. prop. b.
 d. be. cam. r. u. ted. h. t. m. sal. d. h. h. l. d. h. ch. l. d. h. d. t.
 sam. in. t. ce. p. th. p.
 Th. p. o. c. e. p. pe. h. h. pl. t. d. f.
 pleating th. ly. part. f. h. m. l. ph. h. h. a. r. mal. Th.
 t. say. h. post. part. d. d. d. f. g. h. cal. eck. d.
 bri. g. g. t. g. th. ly. h. h. th. m. h. h. h. m. t.
 sphinx or h. ld. be. pa. ed. th. e. case.
 Th. h. ld. los. gh. f. 1 Ap 127 1926 h. h. dm. t. ed.
 t. h. Hosp. 1 f. th. Good Sam. f. f. r. th. m. Exam.
 t. h. t. m. h. ed. hang. h. g. r. al. d. h. d. h. be.
 y. mp. m. h. co. t. l. f. t. l. th. p. b. g. h.
 as. b. o. a. d. s. ca. f. m. h. p. prop. t. e. my.

Op t N 2 S p p b Cy t t my f R par fl t m l V al
 Sphincter (Ap 128 1926) — Mid Aft po g th bladd
 h hw f dt b ry mall th I kw m bl dby p t g
 tf m th t b th th fib b dwh h b ld t g th th bo f
 th pet I th g th bl dd k f dt be ry than d
 hb sep t d fr m th t b th th fib b d ly w th
 d bl d ff lty (S Fig 485)
 H gf d th k f th bl dd p p b p g te d d
 d d d th fib b dwh h b ld t g th th p b b Th

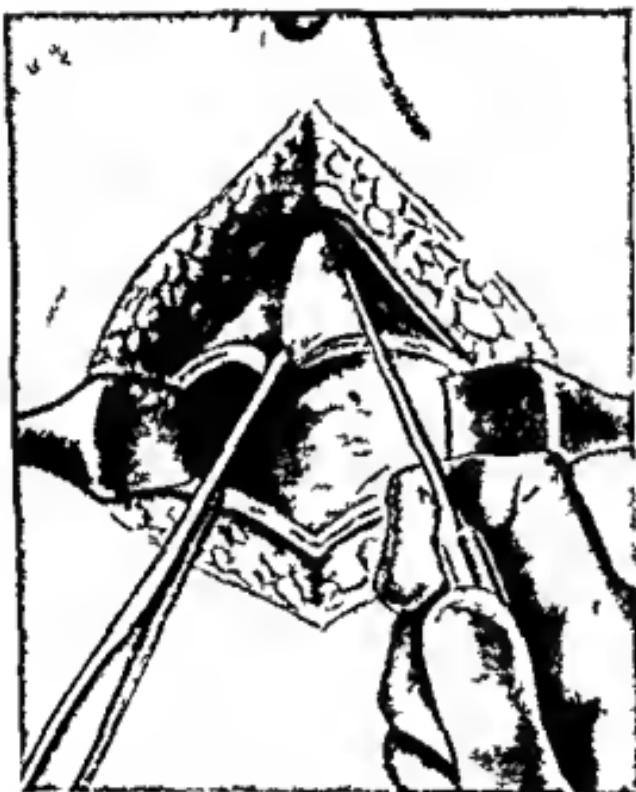


Fig 485

c ed i f tse m dp bl t t d t A
 small V h p l p to w m df m th t pect f th es cal
 eck Th cal eck b ght t ghtly t g th N 12
 cath t lth l t d p dt dth t l f f
 th bl di lm t g th fixat f p p b d g t be (Se
 Fig 486)
 A lt f th pe t th pt eg d d bl co t l
 sh df th fi ttm l ht t th d r t t
 W ld t ll h ll pef th R fl ly h bld t th m t
 f 100 At t h ld g h t t g h i h b t t th

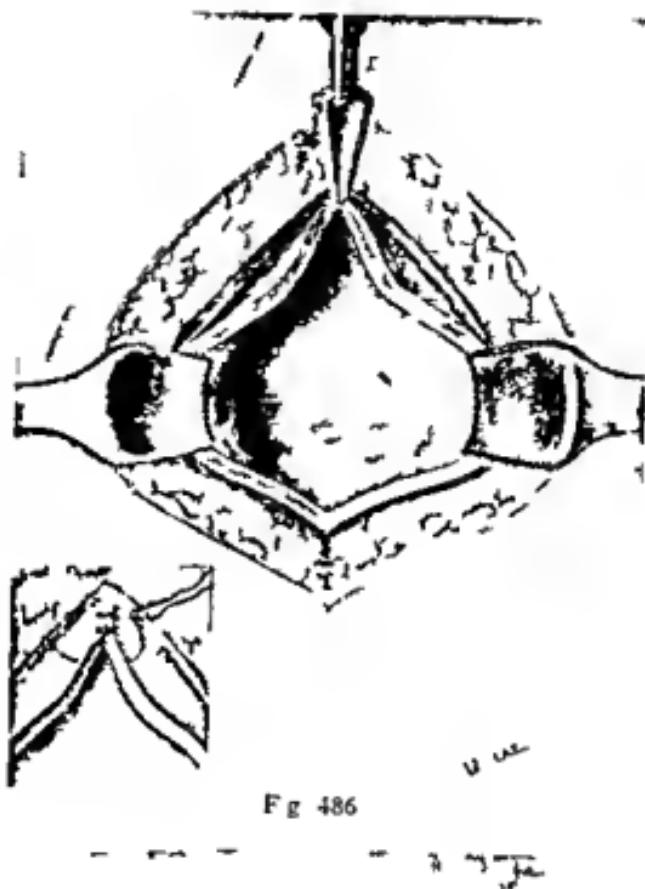


Fig 486

- - - - -



t m m o ld p At ght h d t B g h d
 y w m d th f th h ll by th p t

Op t N 3 R trut f U th al C i m Ep sp d
 (J y 19)—I A g l Chld H pt l S p p b d ag
 t bl h d b tt g d th tp f d d W th th p
 da ll d w i t p s f k w t dd l u Fg 487



Fg 488

Ad p t t d dt b gt b th th t f th th
 h b y ! th cal eck (See Fg 488)
 Th l l t th t d th gh t th te t f th
 pe so d be g sel t ly t d p th pe d h ld po t
 b t lso f th p pose f tl g th th (S Fg 489)
 Th pef i f th pe b gh tog th th
 rupt d lk h Fg 490
 Full g th r t th l bl d f th pe
 th p batt d t th deep t g b h h d be t od d

th oot f th pe t pa th ph t m sc Th p t tm
 h ga th ppea ee f g gr d so th t t
 m d A cath t tl t

Th lt f th se pe t p oced th case f ll
 Th bo h pe fect t l f h bl dd t ght M t f th tim h
 ha perf ect ld g h d y Wh h t dh bl t h dth



Fig 489



Fig 490

m b th ld g p babij t d eek Th
 th lea l ry llco t t d dth pa sed th ght Th
 > f ma mport th gh d p t f
 d h h Th p oc p t bsaf ly mal
 po b t p cally Th bo bl g school th g
 h h bef t ll impo bl ft bel d h bsol l
 t w ll be th lt sa m

CLINIC OF DR GUY COCHRAN

CHILDREN'S HOSPITAL LOS ANGELES

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS IN INFANTS

HERE is a male baby of the most frequent type (In our series there have been 5 males to 1 female) He is four weeks old birth weight is 7 pound 2 ounces present weight is 7 pound is breast fed He has cried after each feeding since birth but has been well until three days ago when he vomited for the first time Since then he has vomited after each feeding and after taking water the vomitus being always projectile The bowels moved four days ago Since that time only a little mucus followed the use of a suppository You will notice that the cry of the baby is that of starvation and that his skin hangs in loose folds from dehydration

We are unable to palpate a tumor at the pylorus but this is not unusual for in many we find at operation that the tumor at the pylorus lies under the border of the liver or is too deep in the abdomen to be felt therefore a palpable tumor as a symptom is negligible Since he has been in the hospital the usual peristaltic wave from left to right has been observed on several occasions

The pylorospasm cases are usually ruled out after a couple of days observation with change of feeding and by the use of atropin The x ray has not been of help and has been practically abandoned

The dehydration of these babies is always marked and because it is as big a factor as the starvation we endeavor to improve this condition by salt solution into the abdomen or hypodermatoclysis in some form before operation especially if the child has not lost over 20 per cent of its weight for that lo

th oot f th pe t pa th ph t m sc! Th pe t e
 h es ga th ppea ee fg g d so th t es t re
 m ed A eath t tl t

Th es lt f th se perat p ocd th case follows
 Th bo h pe fect t l f h bl dd t ght M t f th tm b
 h perfect co t ld g th d y Wh h t dh bl t h ld th



Fig. 489



Fig. 490

in b th ld g p bubbly t d y eek Th
 th lca l rev ilco m t d d h pa sed th gh t Th
 t f ma t mdport h h d p t f
 vud h b t Th pe oc p bsol t ly mal
 po b p call Th bo bl g school h g
 h h bef a ll mpo bt It bef d h isol l f
 ton will be b l m m

the thin duodenal wall and get a leak which means peritonitis later or a vessel which bleed freely and cannot be clamped without tearing through the wall of the duodenum. When either of these accidents have occurred we have thrown a suture over the area to stop the bleeding, or close the leak and begin again with an entire new incision for our attempts at repair have not been successful. We have not found it necessary to fill the gap by any plastic endeavor for there have been no adhesions to this area and the remaining circular fibers quickly melt away. This was not true when we did the old gastroenterostomy for in these the band remained. The abdomen is then filled with salt solution and the abdominal wound closed in the usual manner however in bad risks time is frequently saved by making the abdominal closure through and through with silk.

There is nothing in surgery more spectacular than the convalescence of these cases. They usually vomit once or twice after being put to bed. They are given hypodermatoclysis in some form and are kept warm. Feeding is begun with 1 or 2 drams of diluted mother's milk every two hours which is gradually increased until the baby is in good condition—which is usually within two days—and from then on gains its weight rapidly.

Throughout the entire case each baby is regarded as a feeding case with surgery as an incident. By this I mean we want the pediatrician full cooperation all the way.

appear to be the dividing point between those who are good risks and those who are bad.

If the child has lost over 20 per cent of weight we operate anyway for though they are bad risks we feel that surgery offers the only chance. We have had so many who are nearly moribund when we get them that it has greatly raised our surgical mortality percentage but we cannot help that except by educating the doctors to be on the lookout for these cases and get them to surgeon earlier. We have operated 105 babies. In the group who have lost less than 20 per cent body weight our mortality is 3 per cent as against 35 per cent in the moribund ones.

On the operating table they are kept warm by hot water bags about them. Ether has proved the most satisfactory anesthetic and it is remarkable how much is required for the small babies. Through an upper right rectus incision the pylorus is divided in the wound by a blunt hook covered with rubber tubing for every effort is made not to handle the stomach or rectum unnecessarily. The case shows the usual ordinary colored tumor at the pylorus. It about the size of an olive and consists of firm circum musle fiber. The Ramstedt technique is followed in all cases.

The tumor is held between the thumb and index finger of the left hand carefully to avoid traction for we have had two deaths by hook slips in the operation which we believe to be due to division of the tumor to get it well into the hand and the hot hook the cold glass.

All instruments lie close in mid-thoracic middle pleural area of the pylorus. The hand is depressed by blunt dissection by opening and closing a mouth gag until the mucosa appears. The hand carried through the thoracic entree of the tumor if possible is held firmly. It is necessary to follow

You will notice that at the site of the tumor there is a thickened part of the tumor that splits off the demarcation from the gas tract. This is a hole through the diaphragm through the tumor through the outside of the pylorus. This is a point of entry to the thoracic cavity.

CLINIC OF DR. L. ELOESSER.

SAN FRANCISCO HOSPITAL STANFORD UNIVERSITY SERVICE

CONGENITAL CYSTIC DISEASE OF THE LUNG

This young student of twenty whom I should like to present to you was kindly sent to me by Dr James W Ward His father has brought the boy to Dr Ward about once a year for the last ten years

Th l gt bl th f mly Th boy h d h d llth d ry
d f hldh d-m l whoop g gh caltf d f q t
so th t Bf h p t ll h h dh t l m d th h
ha h d f th t bl wth th t A hldh h d lymph d t
d lymph gt fth fll g j ywh h d hm pf
k H df m ll fth f t ln t th d ffi lt y
fth m ff r d b h t
I 1917 tth g f h h d ht th ghtt be p m
th t l t d k wth th h d co t a t o g h b t pe to t
Th p m th ghtt h b f ll d by mpy m S
th ll h h h d tt k fl bo t ry m th ll h t
w p t d p e d lly d f i lly w p d by D W d 1920
m h p be g vacu t d Th h t h m d p h
d g t be t B m th p t w ject d to th pe g
mbe f y g h p mptly gh d tth p t
H yth d dy p t b thef l f l y ll pt
f h h t l f t whmf h t t Spt mb 12 1927 H
l d f bo t f t z h h ght h gh d bo t 110 p d Th
pl 60 t bl dp 120/80 th t m t
Th rv l d llry gl d w m d tly l g d d ft
Th k fth pl g h h l h p Th thy d
bo t d h l t m m t f d f l m t y
Th h t f t t h l f t d t c t d d tood t ll t
t ymp t po pe Th w b th so d t be h d
t Th a d g t be set d t m ll p g th t th
l t th l l th scap l gl Th ry l t t se t f m
th be A sc ped f m th d g pe g wh h b th d
gh d d l w d p f th j ted t t m m d t l y p ked
gh Th ght d fth h t f th al t th
pe



Fig 493—D mb S 1927 Aft 6 t p t R t f fil h
t th b 1 ft 1 Uppe st h gd L lbe pe d
dp k d thg



Fig 494—J 21 1928 B hect t st [1 ft 1 lbe filled
hipod l h h po ed t th pe d



Fg 491—A gu 14 19 M ke d t f th t cheat h lf
 A l g co g ca b fl j th tra d ru
 h gb esp o l g th lf ppe l be Am l locula ca y belo
 co ruthe dra od ced th gh ld sect pe g th
 t h b



Fg 49 —Ox be 12 19 L pod 1 ec 1 h h d
 b h ll T head t f La g f1 f ppe l be
 persi L pod 1 fll f sacs th 1 ff l be h h ld h r se
 t be pf D ll pl

Th 1 d pl t 1 ged d t p lp ht th t f th
 bd m m t
 Th d m
 Th wa m l Th bl d tw f ll If gl b
 85 pe t (Sahl) d blood W 5000000 ht blood W, 7800
 pol m ph 1 68 lymph yt 32



Fig 49.—May 1928. Left side view of the patient. The deformity of the face is clearly visible.

D J h R hf h po t d th 3 f ll
 Ch 1 (O t b 11 192)—Fr p ll y th 1 st d ph gm t
 b d t tly m l t th ght d m m l ll tl d by
 ga b blj b l It loe tm Th ght d ph gm hyp
 t
 St p t po h t film h w m k d ll p
 f h l f i g h l g p m h oc pr gp tically th t
 ppe h lf f th 1 st h t Th 1 lb w ld m t b t so w ll
 l ps d lt d sel lect d th b h lt pply gt h h
 co t g b ll m d tb t th heath h d w th pe
 ll y ll d m t t d b th pl t d t sc pically N
 po t l th t th b h b m d po t ly d d g t be
 se t d th gh b bo y d fee t h t po th 1 st h t
 br th d ph gm Th s l p set Th h t d m d t l
 t h bee l pl ed t h l f d m h f th hl h d w
 f th ght l g l t h l h t t l l m Th ght l g t self



Fig 49.—F bru n II 19 8 C) t f f ppe l h g d Th
II h be e d Right h ld be l f



Fig 496.—M h 12 19 8 Lp d l j f st p f f
I l be M b h l f l b d bl II l f ppe ca ty
g ta b fl d
Th h rt a d pl d l h h lf f h ll ppl l th
right bo d l 3 f h th lf f h m

bronchiectasis that had perforated into the chest I advised an attempt at closure after the manner of Colonel Keller

I may as well state here that both Dr Rehfisch and I were mistaken. What we took to be a large pneumothorax cavity was not a pneumothorax but a huge unilocular cyst of the left upper lobe. The left lower lobe was not collapsed but consisted of a series of bronchiectatic cysts and the drainage tubes lay in one of these cysts and not in the pleural cavity.

On October 20 1927 under satisfactory gas and local anesthesia a curved incision was made over the left chest and about 5 or 6 inches of three ribs including two below the one which had grown around the drainage tube and this rib itself were resected. Upon opening the pleura one entered a sacculated multilocular cavity into whose top an open bronchial mouth debouched. The upper part of the chest which from the radiographs seemed to consist of one large pneumothorax cavity was now seen to be closed from the present thoracic opening by the above mentioned sacculated membrane. The pericardium lay at the front of the wound. The soft parts were brought down over the pericardium with one mattress stitch and the rest of the wound was left open the sacculated cavity being packed with balsam of Peru gauze. It appeared probable that the cavities were bronchiectatic.

The boy made a good recovery.

On November 7 1927 my note read The old cavity exposed at previous operation is clean and granulating. The pericardium is visible in the bottom of it and between it and the chest wall lie a trabeculated meshwork into whose pouches various bronchi debouch touching these bronchi immediately provokes a cough. Access to the upper part of the pleural cavity which radiographically seems to consist of a single large space is not got by the first operation a needle introduced into the upper chest in two places withdraws air. In order to open the upper part of the chest therefore 2 inches of two more ribs are resected from about the costal angle forward. The underlying parietal pleura is about 1 inch thick underlying it and clearly separable from it in a cleavage plane another thin membrane

ppc mal f t p th logy ed Th sm II
 cal fied od I t th ght t p
 C I —D g t b l ft h t w h mpt II pse f ppe
 l ft l be d pa l II pse fl w l ft l be
 L p ed l I r t f Ch s (O be 12 197) —Fl osc p call th
 l p od l t be part lly b cu edj t bel th po t h th gh
 m j b h t k g A d bl m t f ld ps l l d wa
 pa t th po t d t mall bloc l p ddi h l marnt
 th mm fth d m fth diaphragm Th p ddi h leal d
 t bl ect th t l g b h d t b hual l t
 bea t f lly d m t d th eo-c p film

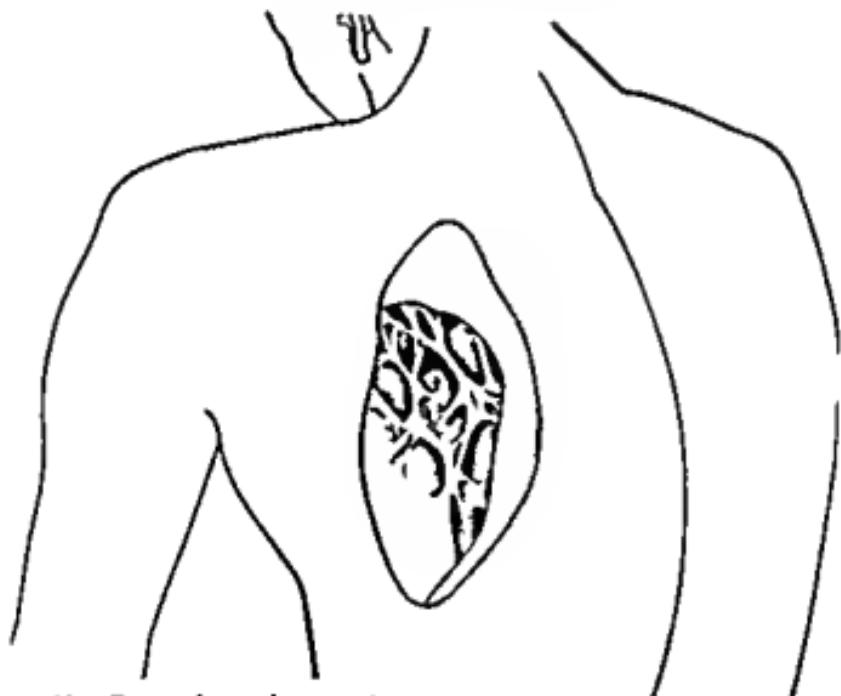


Fig. 498—D n f m ph t or ph Sh p ly I l be f fist

Tb l t I b h t b b h p ddi ry ea h
 d sal bo d f th gh ba Wh h pa se h t h co
 p vs I tardy th l f d p d d f h d g be
 C I —St os f th ght t t h h pe ph l b
 h d l ta h p et II II p d t h l b h b hual
 fist l ect g tt h d ld

I di agnosed a chr my m w th b h l h tul a d
 thou ht t most l kel th t w h d t de l th ge t l

sent home with a small sinus leading to the stump of the left lower main bronchus which still secreted a few cubic centimeters of mucopus a day. Since he has been at home a few black silk sutures have been discharged from the sinus. A lipiodol injection shows it to lead into the left main bronchus. No connection between the large cyst of the left upper lobe and the sinus is demonstrable.

What to do with the large cavity of the upper lobe is a problem. An extensive thoracoplasty will probably collapse it but it is doubtful whether any operation is justifiable as the lad has no trouble from the large air containing cyst.

Isolated congenital cysts of the lung are rare but a considerable number have been reported. Sultan operated upon a suppurating cyst of the left lung in a twenty three year old girl she succumbed to a postoperative empyema. Sauerbruch operated upon two one a woman with a cyst of the right upper lobe who died of postoperative shock a second patient with a left sided cyst was cured.

Cystic degeneration of an entire lobe is also reported. Clairmont (Deutsche Zit f Chir 200 157) operated upon a boy of ten with a cystic degeneration of the right middle lobe the boy died of postoperative shock or embolism. Sauerbruch (Arch f Klin Chir 148 721) in a short communication to the 1927 meeting of the German Surgical Society speaks of 4 patients sent to his clinic for treatment of what was taken to be chronic empyema. The chests of the first two were collapsed by the usual method when to his surprise he found that what was taken to be an empyema consisted in reality of large cystic pulmonary cavities. Fortified by this experience he was able to make a correct diagnosis in the other two. All 4 patients were cured after extirpation or resection of the diseased lobe.

Robert T Miller Jr (Arch of Surg 12 392) reports most interestingly upon 2 infants one with a congenital cystic lung exactly similar to this patient's except that in the infant the right lung was affected. A child of five weeks was brought to the Johns Hopkins Hospital suffering from attacks of dyspnea, cyanosis and labored breathing coming on usually twice a

perhaps $\frac{3}{8}$ inch thick when this entered one looks into a large cavity occupying the whole upper chest giv and glistening its medial surface pierced by numerous openings, the largest perhaps $\frac{1}{4}$ inch across some of them running as tunnels superficially in and out of the thin membrane others probably running toward the bronchi. Between this very large cavity and the multiple trabecular ones opened at the previous operation lies a thin but tough fibrous septum perhaps a little over $\frac{1}{2}$ inch thick which in its center clearly carries a little spongy lung tissue. This septum runs on to the chest wall and completely separates the newly opened very large upper cavity from the smaller trabecular ones opened at the first operation. *Diagnosis:* Congenital maldevelopment left lung. Bronchietasis of lower left lobe and enormous bronchiectasis of left upper lobe.

After about a week the draining tube was removed from the large cyst of the upper lobe though it remained no further fluid collected in it. The trachea of the lower lobe shrunk in the course of the patient two months staying patulous exposing the large shallow half-opened pouches that represented the open cysts of the left lower lobe. They were lined with a velvety reddish mucosa. Touching them produced no cough but the large lumina lead toward the hilum where extremely sensitive so that touching them with an instrument sent the patient into fits of coughing. The pouches contained a thick red mucus.

On January 4, 1928 the sacculated and pendulous lob was dissected off from the pericardium and diaphragm to which it was attached partially with a knotted partly with the gauze packing. A thin layer of alveolar pale chymaturous deduced the pulmonary vessels. At the end of dissection two large bronchial balloons tied onto the left lower main bronchus. These were cut across the end of the hilum were tied and the bronchial mouth closed with fine black silk sutures. The soft part of the skin with subcutaneous loosened and opposed in the bronchial stump and loosely united with silk gut suture. Atraumatic drain on February 4th.

The boy remains in a good condition and on March 12th was

tacks of dyspnea and cyanosis. The plate of the lung shows multiple smaller cysts like those of a polycystic kidney with large areas of sound lung in between them.

Sauerbruch thinks that congenital cystic degeneration may be caused in an early stage of development by a duct of Cuvier which stretches unusually sharply across the hilum of the embryonal lung bud constricts it and presses upon it. The preponderance of left sided bronchiectatic anomalies is explained by the relation between the right and left ducts of Cuvier. The left lies lower the heart compresses the left lung more sharply against the duct. Meyer's plate (reproduced in Miller's paper) seems to corroborate this theory.

Diagnosis of congenital cystic lungs is difficult often impossible. When a communication with a bronchus exists an x-ray with lipiodol will prove that the oil lies in the lung and not in the pleura and that we are dealing with a cyst and not a pneumothorax. If the cyst contains air but does not demonstrably communicate with the bronchus then the presence in the films of a shadow corresponding to an interlobar septum will reveal the facts for if one had to do with a pneumothorax and a greatly collapsed lung the interlobar septum would also be collapsed. Such a shadow is visible both in Miller's films and in my own.

If one has to deal with a solitary cyst or a single cystic lobe filled not with air but with fluid or pus the diagnosis is still more difficult. Clairmont's patient was thought at first to have an interlobar empyema yet as Clairmont remarks the shadow was a rectangular one running squarely across the chest whereas the shadow of an interlobar collection is more often wedge shaped with its base toward the lateral chest wall.

Other cysts are to be considered. An echinococcus cyst may give rise to urticaria shows the typical echinococcal complement fixation and the fluid if one dares aspirate it may contain scolices and be watery and clear. Radiographically there is likely to be seen a zone of normal lung in the lobe containing the cyst. A dermoid cyst may reveal teeth or bones strongly radiopaque shadows. An old encapsulated tuberculous empyema may show

day and lasting from fifteen to thirty minute during which the child sought for breath x Ray films were reproduced that Miller interpreted as a complete pneumothorax of the right side considering that a spontaneous rupture of the cystic lung into the pleural space had occurred. A needle inserted into the chest released air under high pressure the mediastinum which was driven farther to the left returned to the midline and the child's attack was immediately cut short. After repeated currents relieved by repeated punctures a tube fitted with a one way valve was introduced which gave complete relief as long as it was in place. It was removed at the end of a week and the child was discharged with its heart in normal position with a partially expanded right lung and with both sounds coming through at the base although with a somewhat tympanitic percussion note over the right half of the chest. At the age of two months the attacks of extreme pain and cyanosis turned and finally died in an attack. Non operandon.

Reviewing this report in the light of the experience gathered from the patient we have made consideration it seems to me that there is no evidence that rupture of the lung with consequent pneumothorax occurred in Miller's boy. There was certainly no pneumothorax in Neverard cited by Miller in his paper with exactly similar symptom. A cystic dilatation with partial bronchial tenosus admitting air more freely during inspiration than it allowed it to escape during expiration would lead to the same persistent thoracic pressure. It is likely also that the alveolar obstruction must have been part of the process which led to cystic degeneration of the lung. Furthermore I think that an interlobar septum running from the midline to the chest wall is distinguishable in both Figures 2 and 3 clearly in Figure 3 of Miller's paper which probably would not appear were the lung collapsed. I think it likely that before the tube was withdrawn the lung collapsed and not the pneumothorax that drove the mediastinal contents to the left and that Miller's needle and his tube entered the lung itself and not the pleura and that the tube might have remained in place without causing an empyema.

The second child died on the twelfth day of life of similar at-

may be cut away and the operation completed at another sitting or at several. The galvanocautery lends itself well to dissection; the operation is less bloody than with a knife. It is well not to attempt a total lobectomy, but to leave a little lung tissue about the hilum to cover the bronchial stumps which should be closed with a series of fine silk suture.

Large uninfected cysts without pressure symptoms may be left untreated.

sign of tuberculo; elsewhere radiographically it ma b m
distinguishable these cysts of cou e contain fluid but no air

The terrifying recurrent attacks described by Miller Meyer and others in which an infant fi bts for breath turns blue wheezes whi tle and chokes and finally dies in an attack are characteristic. They are due to increased air pressure in a partially ob tructed cyst. The same attacks however will accompany a pre cise pneumothorax from which the presence of an interlobar septum radiographically demonstrable will distinguish them. If the cyst communicates with the pleural cavity or with the bronchus then these attacks are absent and in the both instances the symptom will be quite uncharacteristic. With free communication the symptom and sign will be those of a wide open internal pressure thorax with no communication at all the cyst usually a small one contains a mucous excretion and makes the usual symptom of a benign intrathoracic tumor or a faint thoracic abscess or perhaps a symptom at all.

The signs are those of a pneumothorax without pressure and mediastinal deviation if the cyst opens or of a intrathoracic tumor an empyema an abscess if it is closed. Accordingly a thoracotomy is steril or not the patient are free of fever often with little or no pus.

The is often a cough with little or no sputum.

In infants with signs of reduced intrathoracic tension and mediastinal deviation the cyst should be opened either by introduction of a small tube or by making an incision through the lung of the cyst to the skin of the chest. I doubt whether anyone would undertake lobectomy in infant of extend name. I older patient with opening of the cyst lung with a quantity more or less complete loss of the lobe and suturing of the communication bronchus and closed. Dissection of the cyst not easily adhesion partially phimic on him and a double cautery electrode peculiar to the hilum the seal a little and require until sure him that. However division may be interrupted at any time the partially freed tube may be packed about with cauze pastes.

CLINIC OF DR. J. EARL ELSE

DEPARTMENT OF GENERAL SURGERY UNIVERSITY OF OREGON
MEDICAL SCHOOL

PREVENTION OF RECURRENT GOITER

SINCE Kocher began his work with goiter there has been a continuous discussion as to the efficiency of different method of treatment especially as to the relative value of operative and medical treatment. At first the mortality rate was such that the danger of the operation was an important factor in the discussion. But today with the use of Lugol's solution in preparing the patient for operation and the greatly improved technic the mortality rate in the hand of a skilled goiter surgeon is very low in fact it is less than the mortality rate from cardiac disease due to toxic goiter in those who are not operated upon. The internists for the most part no longer treat toxic goiter with the idea of a cure but merely for the purpose of preparing the patient before referring him to the surgeon. The x-ray treatment has had its days and is no longer used except by x-ray enthusiasts and a few general practitioners. The question of the prevention of goiter with the exception of the congenital form is pretty well understood.

Formerly most of the goiter operations were done by surgeons especially interested in goiter who had because of this interest developed such ability that they might be referred to as goiter surgeons. With the increase in the interest in goiter general surgeons and general practitioners began operating upon goiter so that today the most of the goiter operations are not being done by the specially trained goiter surgeons. As a result there has been at least in our clinic a considerable increase in the number of patients coming in with recurrences following operation. I see as many now in one year as I formerly saw in two or three years.

The third group that due to incomplete operation is the group that is increasing today. The operation for goiter is not as simple as it looks. I am frequently asked how much of the thyroid gland should be removed in the different types of goiter. In my judgment there is only one reply. Remove all except a thin layer along the posterior capsule. Leave the same amount of thyroid in all types of goiter regardless of whether it belongs to the extreme colloid form of the diffuse adenomatous type or the very toxic exophthalmic type. Our rule is to remove practically all of the gland leaving only enough of each lobe to permit regeneration. If a sufficient amount of the diseased gland is left to secrete thyroxin enough to care for the needs of the patient the patient is very apt to have a continuation of the goiter because the gland left is still a diseased gland. We remove so much of the gland that the patient would have hypothyroidism or even myxedema if there were no regeneration. There is no gland in the body in which regeneration takes place more easily and more readily than it does in the thyroid gland. Were it not for this goiter would not be nearly so common. Exophthalmic goiter is an excessive hyperplasia of the epithelial cells lining the acini. Adenoma is an excessive localized hyperplasia of acini and the diffuse adenomatous goiter an excessive diffuse hyperplasia of acini all due to the great regenerative power of the thyroid gland. I have studied the ability of regeneration upon rabbits and dogs. In both of these animals I found that when enough thyroid was left to supply the needs of the animal no regeneration took place but when so much of the gland was removed that there could not be enough thyroxin supplied there was an increase in the amount of colloid secreted within two days and within a week hyperplasia began. This hyperplasia was rapid so that in from three to four weeks it was entirely completed. The problem in operating upon the goiter patient is not one of leaving gland enough to meet the needs of the patient but one of leaving gland enough to secure regeneration. This amount we found in our experimental work is exceedingly small.

The recurrences we group roughly into four classes. First error in diagnosis; second patients operated upon after permanent lesions have been produced; third incomplete operation; and fourth true recurrence.

First group A patient whom I saw yesterday will illustrate the group.

The patient male 35 f ge Am ca d married F mul h tr F h d d f p m M h l v g h g T child 1 g H bad ll N h t r s ea t be culos in f ml Pre ll sse R pt ed ppe d y g dt b l p g tw y g
 P set t m pl t (1) T hys d d p lpat f heart (2)
 as (3) l ss f gh (4) ll g lf t () tpat
 Present illness Beg a l l g badly hee d h if m th g
 T h ca dia and palpiti tced l tw m b H los som w ght
 b doe t kn wh m ch Appet good O d eet q es d n g
 xam t ted h a light gh b t dd tm t th m g
 l t f m pl
 Exam Pulse 96 regular Temp t 98.6 F Blood p ss
 124 88 T l ta d caseo m n l Th d palpabl d l
 I Roe g ra p fch t f d ly d f tube !

Now here is a patient who has tachycardia, palpitation, nervousness and tremor, shivering, loss of weight and has sootier. She was referred to me under a diagnosis of toxic goiter. Her physician could not operate. Had he consulted me who did he might have been operated upon. If this patient were to be operated upon, he would feel better and she would actual improvement because of the rest in bed but in a short time all of her symptoms would return and until the pulmonary lesion had been diagnosed she would have been regarded as having a chance. An lower respiratory infection may produce symptoms similar to those of hyperthyroidism.

The second type of so-called recurrent cases in which the patients have been operated upon after permanent lesions have been produced can usually be followed by the operation. The patient will tell him the result of the operation and the damage done to the thyroid gland.

man forty years of age with a toxic hyperplastic (exophthalmic) goiter. Although he has been operated upon twice elsewhere he still has a goiter because the operations have both been incomplete. This patient has retrotracheal extensions on each side. This is the most common cause of incomplete operation in the hand of the better surgeons and yet they are easy to find both before and at operation if one is on the lookout for them.

The method of examination is important. In palpating a thyroid gland I prefer to stand behind the seated patient. The tip of the forefinger of the right hand is placed over the upper pole of the right lobe, the middle finger at the center and the ring finger over the lower pole or if this is low at the upper border of the clavicle. The left hand is similarly placed on the left side. The lobes are then palpated with the three fingers on each side. The patient is asked to swallow at which time the ring finger is dipped below the lower pole except in those patients where the gland lies so low it cannot be lifted high enough by swallowing.

Next still standing behind the patient the fore and middle finger of the left hand are pressed against the center of the outer border of the left lobe at a point posterior to the trachea so as to rotate the right lobe outward and forward. At the same time the right lobe is palpated between the thumb and first two fingers of the right hand. The process is then reversed to examine the left lobe. If there are retrotracheal extensions they are rotated outward and can then be palpated. Examination of this patient by this method showed definite retrosternal masses on both sides. The incision is made along the old scar and the muscle separated along the midline. Sometimes the ribbon muscles have to be cut in laryngectomy operations but usually a good exposure may be had without as the location of the recurrent laryngeal nerve is uncertain because of the adhesions from the two former operations the right lobe will be grasped with the vulsellum forceps well out from the trachea. By lifting forward and turning the forceps forward a fairly large retrotracheal extension is found which has never been touched. This is the cause of the failure of the two previous operations. We will now make a longitudinal

The first two patients we have to operate upon this morning are those with pseudo occurrences.

This first patient is a man of forty years of age married. Complaint (1) Goiter (2) Cardiac palpitation (3) pain (4) loss of weight (5) loss of appetite (6) ease of breathing (7) easily fatigued. Present illness Patient has a perverted position of the tongue two years ago. It has been for three years. Full gait, patient still walks well. Two years back the heart beat was normal. Now it is slow and weak. He has had progressive loss of appetite. Now he is very fatigued. His pulse is 100. Blood pressure 26/100. Mild exophthalmos present. The right lobe is enlarged to grade 2. Left lobe palpable. Gland 6 mm. Heart beat regular. Type I mitral valve. Second sound greater than second dorsal process. Abdomen not palpable. Liver not enlarged. Temperature grade 4. Basal metabolism rate +101.

Examination. Patient presents the typical picture of exophthalmos. Pulse 100. Blood pressure 26/100. Mild exophthalmos present. The right lobe is enlarged to grade 2. Left lobe palpable. Gland 6 mm. Heart beat regular. Type I mitral valve. Second sound greater than second dorsal process. Abdomen not palpable. Liver not enlarged. Temperature grade 4. Basal metabolism rate +101.

This patient was sent to the hospital and put at his leisure in bed 10 or 12 hours of the evening and 5 strain each morning for the first few days. She was given 25 minims of Lusol's solution four times daily. This was followed. Today instead of having a nervous patient we have one who has been brought to be operated upon. We never feel a patient. We do not operate until the patient is mentally ready for the operation and the most of them are not nervous upon coming to the operating room. At the time of operation only a portion of one lobe is removed. She has no enlargement of the other lobe and the thyroid. I have twice had a similar occurrence of this type. A third type of operation is not done in our clinic. In the first in whom recurrence has been delayed because of curvature of the spine. In the second the thyroid has been removed in the usual and not the expected. In operation up the patient the scar will still be made and then the operation will not differ from our usual operation except that there will be an additional scar.

The next patient is also in the same group of pseudo occurrences who has had a perverted position of the tongue. The patient

operation for two months by giving 10 minimis of Luol's solution three times daily for the first month and then once daily for the second. After the second month all patients are instructed to take either one 10 mm sodium tablet weekly or use iodized salt for both table and cooking use. I think this will prevent most of the recurrences.

I have selected the fourth patient to illustrate the type of operation we do for the purpose of preventing recurrence.

Th p t t f m l w h t g f t y y d d
F mly h t r y g t
Cmpl t (1) G t (2) t hycad d palp t t (3) n rv ss
(4) d ffi lty b eath g
P t ll Th g t w f i t t d t t F ll w g th
t d d dth m d tt y tl h w thirty ix
S th ttm th b g d lly g1 N b g
t b tth tm th thy d b g t Sh h h dt hy
cad f p tt y d dfficulty b eath gf th p tt m th
Exam t F ly w ll h d P ls e t t 80 Tempe t
98 F Blod p 124/82 N phth lm Thy d l g d g d
3 m d t t cy H t Sy t l m m t pe Sm ll m
b leah h ia G lli blid d t d Ut ru t v e t d d slightly
l g d Small cyt l d t l R fl mal Slight t m
B salm tabol t +7
D gn D ff se d mat g t p d g m h cal ymp-
t m wh b h b t ttm bt tt w t p se t
Op t d d b ca f m h cal ymp t m Th typ f
g t lly b m t t m d t bett t pe t b f thy
b m t d p d p m 11

In the operation note (Fig. 499) that I make only a comparatively short incision. By the use of the Farr retractors this incision will stretch to give ample room. A woman does not like a scar that reaches one third of the way around her neck and it is absolutely unnecessary. Next we separate the skin from the platysma to the prominence of the larynx above and for about 2 cm below the incision and at each angle. This separation especially at the ends of the incision is absolutely essential in the use of the small incision. It is best done by blunt dissection with the Mayo scissors (Fig. 500). If a knife is used troublesome bleeding is often experienced. The Farr retractor is placed so as to stretch the incision vertically (Fig. 501). The muscles are

incision some little distance from the trachea through the capsule and then with my forefinger behind the retrotracheal extension forcing it forward I will remove the gland from within the capsule by cutting close to it and leaving only a thin layer of gland on the capsule. In this way I will not injure the nerve with the knife. Forceps must be applied close to the bleeder that they will not touch the capsule so in so doing the nerve may be pinched. The removal of the retrotracheal extension is not difficult when done in this manner. Securing complete hemostasis is more difficult because of danger to the nerve. We use only fine Kelly forceps and pick up just as little thyroid tissue as possible. The suture in the capsule must be placed with great care or then we will be included in a suture and compressed. On the left side the same condition exists and will be treated in the same manner.

The next patient is a woman thirty years of age with a true recurrence of exophthalmic goiter. I operated upon her five years ago. She was not given iodine either before or after the operation. She now comes in complaining of loss of weight and strength, nervousness, tachycardia and palpitation. She has a definite enlargement of both lobes in the neck on the right than on the left. Pulse 144, blood pressure 140/0 and a basal metabolic rate of +74. This patient has a recurring.

In the animal experimental work we took up the problem and found that in dogs when we removed practically all of the thyroid and did not give iodine the regenerative process was more pronounced than in the animals receiving iodine. In the animal receiving iodine the process is completed in from three to four weeks while in the untreated iodine deficient animal it continues a long time. In two of the animals not given iodine there were operative or postoperative goiters developed and one of these showed the type of addisonian Hula type. In our experimental work we produced the iodine deficiency upon the thyroid hyperplasia. We are now using iodine for this purpose in the human. The thyroid gland was saturated with iodine at the time of operation and kept saturated during the

then separated longitudinally in the midline (Fig. 502). We rarely cut the ribbon muscles. By using the spring retractors with teeth (Fig. 503) an adequate exposure may be had. The



Fig. 502.—A thyroid gland with its lobes separated longitudinally in the midline. The gland is depicted with a textured surface and internal structures. Two thin lines extend from the top left and bottom left corners of the main oval shape.

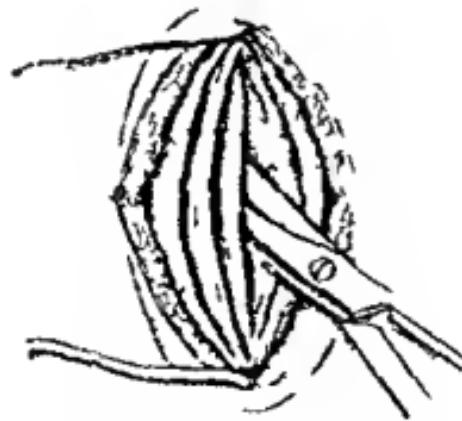


Fig. 503.—The thyroid gland being held by a pair of forceps.

The next step is to separate the upper pole of the gland from the lower pole. This is done by applying a vessel-sealing forceps to the upper pole of the gland. The method of sealing the upper pole is important. With

The method of sealing the upper pole is important. With



Fig. 499.—A. H. I. t. b. h. rt.

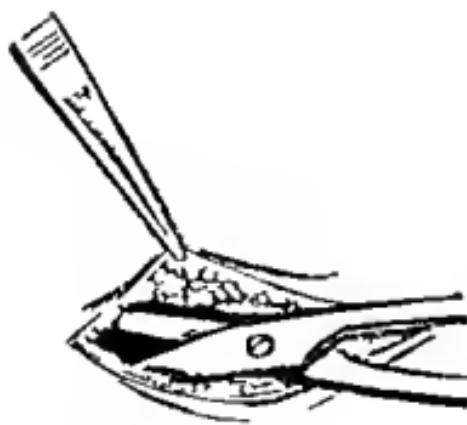


Fig. 500.—Th. k. p. d f m h pl b fl d sc
 Abo t h fd b sep. m d h p m f h l b l f i
 m l b o l l se l h bo h d f h ll f d

sected free by blunt dissection. The nose of the forceps is then placed against the inner surface of the upper pole and passed from within outward hugging the posterior surface of the pole tightly at all times (Fig 505). It must never be passed in the opposite direction. The forceps is then opened and the lower blade of a second forceps is seized. With the second forceps opened it is pulled back so that the lower blade is posterior to the pole and the upper blade is anterior. The second forceps is

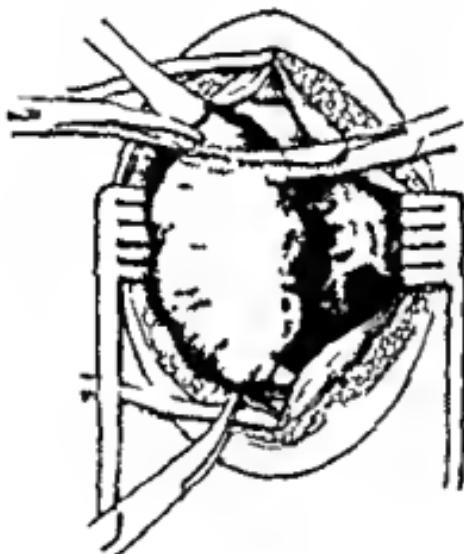


Fig. 505.—After dissection the upper pole of the right lobe of the thyroid gland is held firmly by the upper blade of a pair of forceps. The lower blade of another pair of forceps is seized and the two blades are closed so that the upper blade is anterior and the lower blade is posterior to the upper pole. The upper pole is then crushed and ligated.

then pushed upward to nearly the tip of the pole and clamped. The upper pole above the forceps is then crushed and ligated (Fig 506) following which the anterior portion of the capsule is cut below the first forceps permitting the gland to escape (Fig 507). The posterior portion of the capsule is not cut. The suspensory ligament is next freed (Fig 508). The isthmus is then

gentle traction the upper pole is pulled outward at the same time that the second instant pull the muscle backward (Fig. 504) In this manner the upper pole can be reached and

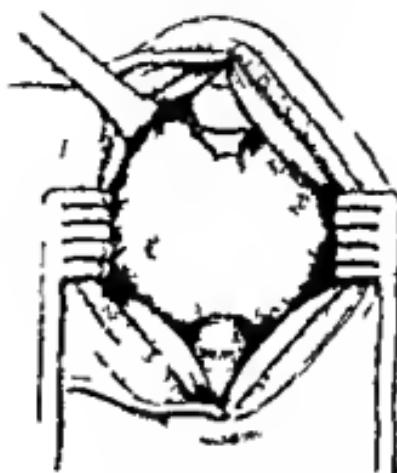


Fig. 503.—The Ferr prong is turned back so that the serrated cut hemi-mill will pull the muscle

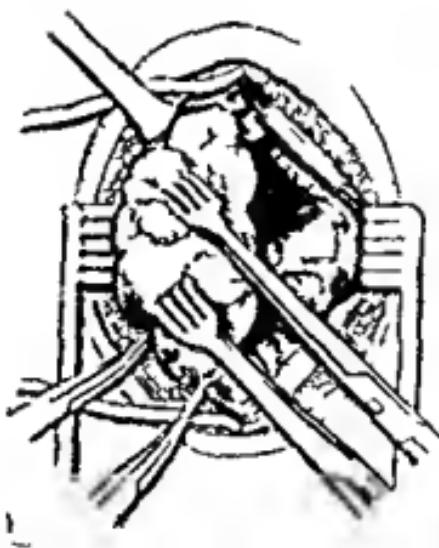


Fig. 504.—The I-beffed fbed has itself impeded

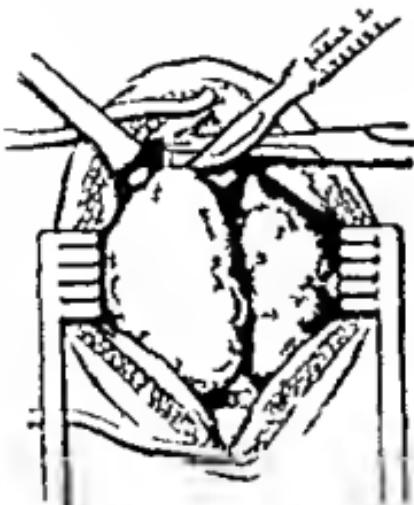


Fig. 504.—Th p so s lig m i f th thy d t t p i d
t Th set lf mpt p t th gh mll
(Villm p th)

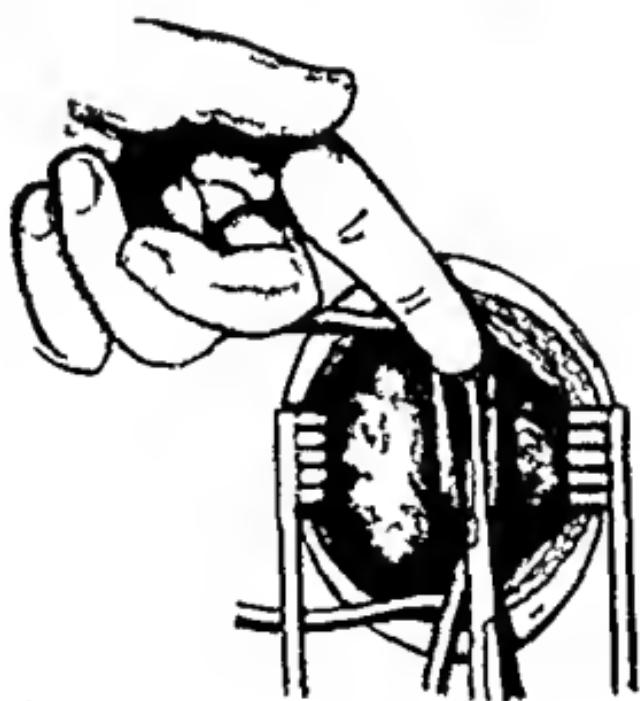


Fig. 509.—Th h scf m h h b j f ll p g
ff p sc so h d l po f bel p d Th f p
tl d r db f g b h thm d t p t th t h
Th pot ll d f seco df p h p sed l gth f t f p
p h gl l d th t p th l moe l

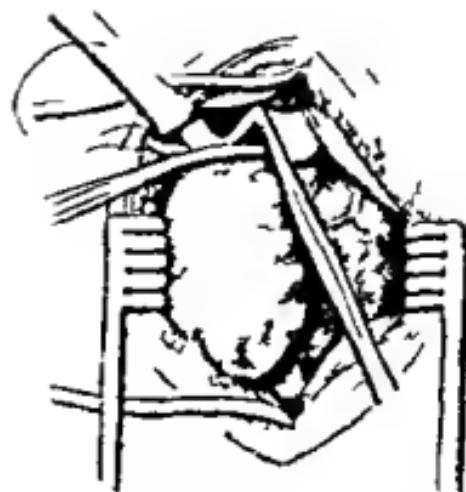


Fig. 506.—Th ppe pol h d h h p ff p
dig t d \ thyx d ss h ld he lf h ppe pl
t h po p d fes bl ia (\ lsell m f p
h m)

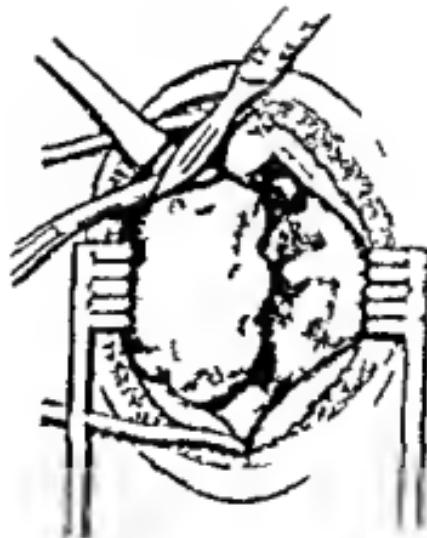


Fig. 507.—Th port f h t p l II l pol
scape f rw d Th po port f h t p l II l pol
sell m f ps pl F 04 b II l pol
th II b tru th)

raised by carefully passing a curved forceps under it from below upward (Fig. 509). This forceps must be directed by a finger above the isthmus as otherwise there is danger of injury in the trachea. The isthmus is then clamped and cut entirely through (Fig. 510). It is essential to completely remove the isthmus leaving the trachea bare because first regeneration in this area is apt to give a mass to which patients object and secondly retraction of scar tissue on the sides of the trachea may exert sufficient traction on the posterior portion of the capsule of the isthmus if left to produce a feeling of constriction.

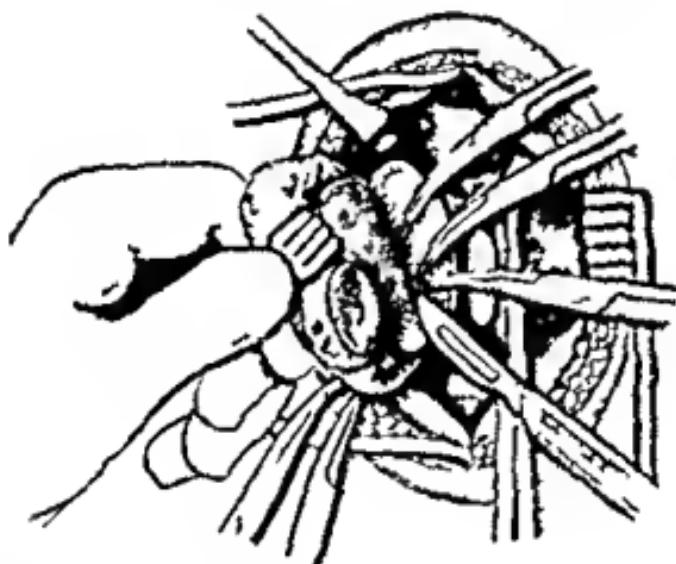


Fig. 512.—The thyroid gland is rotated inward so as to look for a retrotracheal cyst. The failure to do this is a frequent cause of recurrence. The isthmus is now lifted upward and an incision made into the capsule just below the isthmus (Fig. 512). By sharp dissection the gland is then removed leaving only a very thin layer over the posterior portion of the capsule (Fig. 513). Care must be taken in placing forceps on the recurrent laryngeal nerve often lie close to the

Before starting to remove the lobe it is rotated inward so as to look for a retrotracheal cyst (Fig. 511). The failure to do this is a frequent cause of recurrence. The isthmus is now lifted upward and an incision made into the capsule just below the isthmus (Fig. 512). By sharp dissection the gland is then removed leaving only a very thin layer over the posterior portion of the capsule (Fig. 513). Care must be taken in placing forceps on the recurrent laryngeal nerve often lie close to the

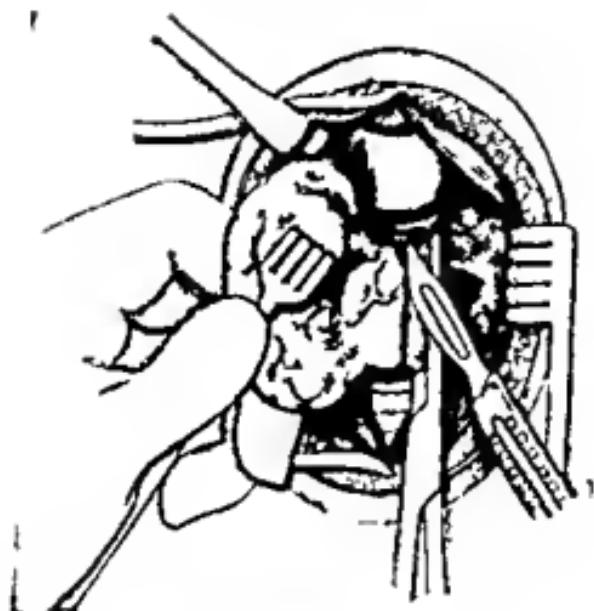


Fig. 510.—Th. thin
port. Ith. thin
p. (1) hly. eg.
thm. han
bel f. t.
ur by th. gh.
() se se f.
t. e po t. It.
see capsul. l.
d.

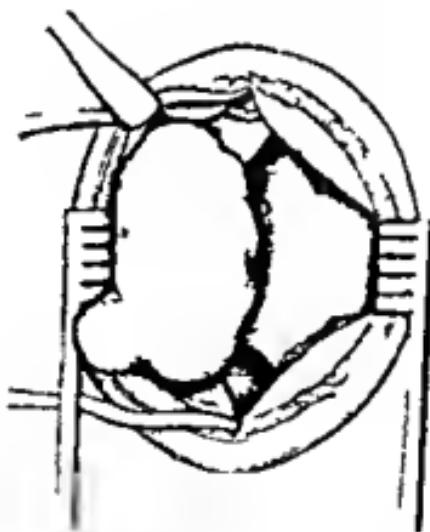


Fig. 511.—Th. I be. d. d th. ll. ly lf. g f r a d.
th. n sell m f. cep. d. h sam. m. m. g. h. h. m d l.
Th. bn. gs. t. h. l. f. p. se. \. l sell m f. ps. t.
h. beca se. bs. m t. g.)

sutured as accurately as possible so as to cover the raw surface of the gland (Fig. 514). This is essential in the prevention of oozing as the oozing that is so frequent probably is chiefly from the gland substance. When there is a pyramidal lobe present it must be completely removed otherwise an unsightly mass may develop. I once saw the return of symptom from such a recurrence.

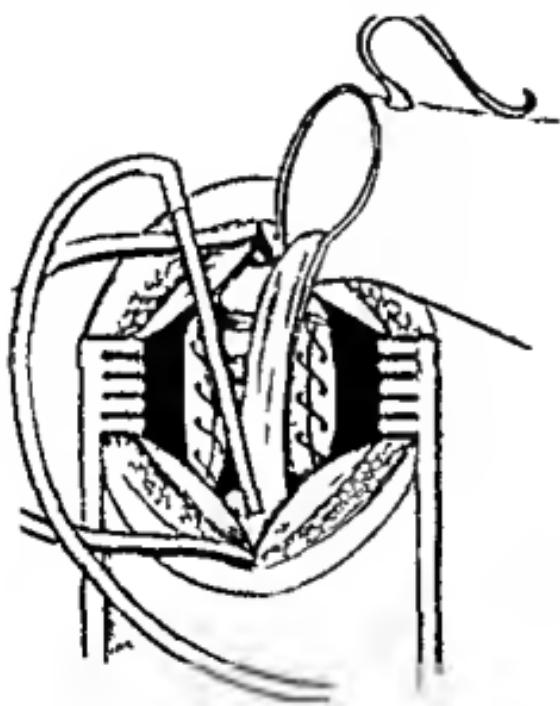


Fig. 515.—The wound after removal of the thyroid gland. The vessels are tied off and the clots removed by suction.

After this has been done the removal of the gland the wound should be carefully washed out and the fluid removed by suction (Fig. 515). In this way many clots are picked up which would otherwise be left and would serve to cause oozing. The anesthetist now lets the patient come out sufficiently to gag. If there are any vessels which have not been properly closed this will open them up. This is very essential in preventing postoperative bleeding and oozing.

capsule Dr Lester Jone one of my associates once found it living in groove in the capsule. For I think we use very fine catgut as suggested by Terry. The capsule is next

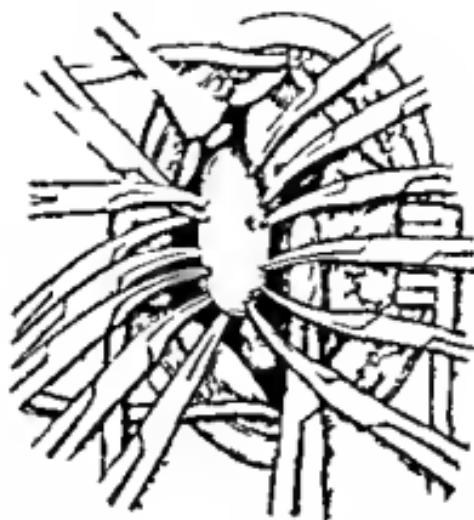


Fig. 513.—The gl. d.
f th f th
h caps l. h w f.
d. h c p t. F p m t b pl d.
l. d. s. t. t. m. t. f th
th ca.

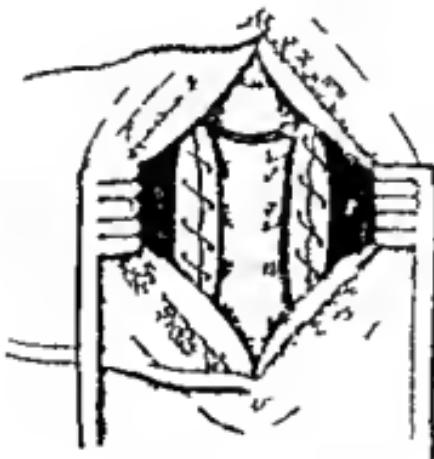


Fig. 514.—The c. p. l. m. p. l. po. 11. h. f.
g.

should have been carrying. We now use a subcutaneous stitch to unite the subcutaneous tissue (Fig. 517) and then put on skin clips. It would not be necessary to put on skin clips in order to secure union but we get better looking scars by doing it.

You noticed I did not put in a drain. I rarely do. We have been studying the question of oozing. When I used drains oozing was present in 100 per cent and I was afraid to discontinue it and then I discovered that the oozing that gives us trouble was not the oozing that was carried off by the drain.

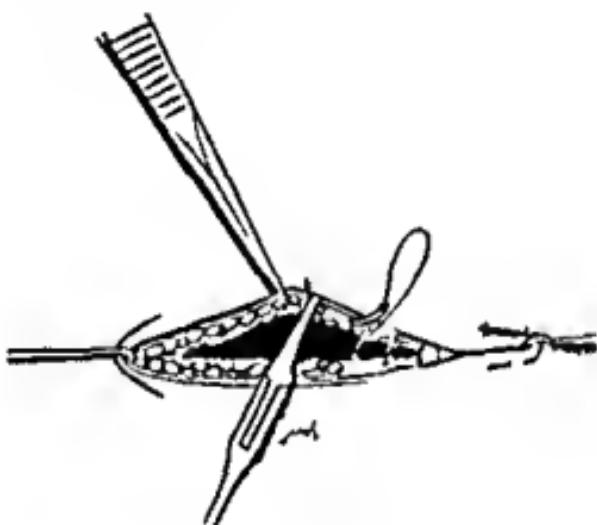


Fig. 517.—A better catgut stitch than a drain.
The drain removes blood from vessels that should have been ligated and serum that exudes because of the irritation from the drain which acts as a foreign body. The oozing that gives trouble starts usually between the third and fifth day and comes from the gland. Since discontinuing the drain and being more careful to secure complete hemostasis we have reduced oozing to less than 50 per cent. When oozing is present it is removed daily with a large needle on a Luer syringe.

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The anesthetic used was ethylene. We do not use local

The muscles are closed in two layers (Fig. 516) in order to prevent tracheal tube upon the skin. By closing the muscles in this manner there can be no direct line along which serum can drain from the vicinity of the trachea to the skin and along which a connective tissue band could form and cause an unpleasant lifting of the skin every time the patient swallows.

Now I want to show you one of the most important steps in the operation from the standpoint of cosmetic results. Most surgeons usually get up to go when we start to close and yet



Fig. 516.—The muscle layer is so tightly closed that no drainage can occur.

women judge the result of the operation in later years more by the appearance of the scar than by the relief of the symptoms which they have often.

Frequently we had a temporary cleft, which had thick scars develop after I am in the hospital. We would discharge the patients with very pretty thin skin at the site of the incision to have some of them turn later with thickened edges. I think we have found the cause. We wanted the epithelium and not the subcutaneous tissue. The tissue had been thrown upon the epithelium which underwent massive hyperplasia and it became strong enough to carry the work through without us to

should have been carrying. We now use a subcutaneous stitch to unite the subcutaneous tissue (Fig. 517) and then put on skin clips. It would not be necessary to put on skin clips in order to secure union but we get better looking scars by doing it.

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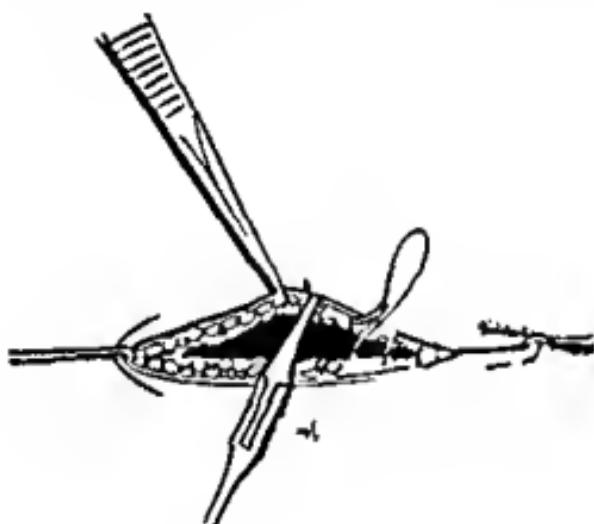


Fig. 517.—A better way of closing the skin after thyroidectomy. The skin is sutured with a continuous suture and a drain is placed beneath the skin. The drain removes blood from theessel that should have been ligated and serum that exudes because of the irritation from the drain which acts as a foreign body. The oozing that gives trouble starts usually between the third and fifth day and comes from the gland. Since discontinuing the drain and being more careful to secure complete hemostasis we have reduced oozing to less than 50 per cent. When oozing is present it is removed daily with a large needle on a Luer syringe.

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The anesthetic used was ethylene. We do not use local

ane the in because first the patient who is the least bit apprehensive is more apt to suffer shock if awake than asleep and secondly oozing is more frequent with a local than with a general anesthetic. Ethylene is safe. Our anesthetist M. I. is on especially trained from ethylene. She keeps a continuous chart of the vital signs and a toxic blood pressure pulse and respiration here I can see at a glance.

The after treatment of these patients is an important prevention recurrence and the operation immediately upon returning to the bed from 15 to 20 minutes of Lu I solution will be given by rectum. This done that if I have drained the iodine out of the hand before operation a man manipulation mor will be taken to it at once through the blood team. Thodium will be given by enema three or four times a day until the patient can take it by mouth. Then 10 mg. am will be given in the time and of one month and one a day for the coming month. Following the coming month the necessary amount of iodine will be given either by enema or in the food. This is not medicine. It is a part of the diet. Without it recurrence is apt to take place.

Conclusions—Recurrence is pseudo and true and for the most part preventable.

In making a careful examination before operation including those with other malignant lesions, etc.

Evolution of the tumor has been produced.

3. Complete penetration leaving only a erythema and adherent to the posterior capsule and looking rather full to retrosternal extension and removal of pyramidal lobe.

4. Hand the thyroid saturated with iodine the sum of the peroxides and oxygen saturation follows in which the greater analgesic rate is with the preparation.

CLINIC OF DR. FRANK HINMAN

UNIVERSITY OF CALIFORNIA HOSPITAL

THE SURGICAL TREATMENT OF UROGENITAL TUBERCULOSIS

THERE are two distinct problems in genito urinary tuberculosis that are not appreciated by the medical profession in general. The first concerns renal tuberculosis and the second genital tuberculosis; but in practice the two for purposes of proper treatment and cure need to be jointly considered. The prominent characteristics of tuberculosis of the genito urinary tract are also in sufficiently realized. The frequency is much greater than one would think unless statistics are studied and the general morbidity is far in excess of the usual superficial estimation. Genito urinary tuberculosis not treated surgically has in fact a higher death rate than pulmonary involvement. It is for this reason that the third characteristic of tuberculosis of the genito urinary tract should be universally recognized namely that whether primarily renal or genital the condition with few exceptions constitute a surgical problem.

Briefly the facts known at present concerning renal and genital tuberculosis are the following:

1 RENAL TUBERCULOSIS

The incidence of renal tuberculosis is best studied from autopsy statistics together with clinical results. Autopsy record shows primary renal tuberculosis to be present in from 1 to 5 per cent of cases according to the particular series studied. When there is an active tuberculous lesion other than the urinary tract such as in the lungs joints etc. the incidence of renal tuberculosis increases to between 10 and 20 per cent. Clinical statistics reveal that renal tuberculosis account for between 30 and 35 per

cent of the cases of total nephrectomy placing the prevalence of this condition above other urologic diseases.

Clinical evidence bears out the fact that except in the cases of miliary infection renal tuberculosis is unilateral in its onset. Although autopsy records show the condition to be unilateral in 52 per cent and bilateral in 48 per cent clinical records show the ratio to be 86 per cent unilateral to 14 per cent bilateral. Taking into consideration the wide variety of clinical error experienced in the diagnosis of this condition this ratio seems to be a fairly accurate estimate.

Clinically the cases of renal tuberculosis fall into two groups: (1) Those in which the renal element is prominent in the kidney with no evidence of tuberculosis elsewhere and (2) those in which it is secondary and accompanied by active tuberculosis elsewhere. From a strictly pathologic standpoint this distinction does not seem to be as all infections of the kidney with tubercle bacilli are probably secondary to a tuberculous focus where which may have healed or be so masked as to leave no clinical evidence of its existence. Clinically between 60 and 80 per cent of the cases of renal tuberculosis fall in the primary group. It is in the patients that surgery becomes so efficient. Of the secondary group of 30 to 40 percent those with active tuberculosis elsewhere there are 10 to 15 per cent with pulmonary involvement and 50 to 60 per cent with an associated genitourinary involvement. The bladder is involved in between 25 and 50 per cent of all renal cases. Our own group of cases showed 70 per cent of the patients to have cystoscopic evidence of vesical involvement.

Genito-urinary tuberculosis attacks individual in the prime of life—80 per cent of cases occurring between twenty and fifty years of age. This is given as a finding of the extreme importance of early treatment.

The earliest symptoms of renal tuberculosis originate from the bladder rather than from the kidney itself. The burning and frequency on urination, hematuria, the etc common complaint. Pyuria and elongated stools are generally characterized by the absence of the common pyrexia.

organisms and the fact that bacteriologic cultivation ordinarily gives negative results inasmuch as the tubercle bacillus will not grow on ordinary culture media. It is the exception to find secondary infections with pyogenic organisms. In early cases it is rare to find patients complaining of backache of renal origin or to show general evidence of tuberculosis such as fever, malaise, loss of strength and weight. The majority of the patients are well nourished and in their full vigor.

The Treatment of Renal Tuberculosis—It is the universal belief that early nephrectomy is the method of choice in all cases in which unilateral tuberculosis is found clinically. The exceptional cases in which spontaneous healing has occurred have shown at autopsy to be invariably due to a complete destruction of the renal parenchyma—the so called autonephrectomy.

It is difficult to form an accurate estimate of the results of nephrectomy for renal tuberculosis. The refinements of diagnosis and technic have made a wide variation of figures. In a series of cases recently reviewed the surgical mortality prior to 1910 was more than 18 per cent as compared to 44 per cent since 1910. The statistics are so incomplete that it is difficult to form a definite estimate of the number of patients cured.

R # 511123 C —Nephrectomy

	P
Bl dd	1 m t
P lm ry	1 m t
Ge tal	1 m t
S g cal m rt lty (pt 1910)	18 8
S g l m t lty (st 1910)	4 39
D d (t m tg)	20 2
W ll (t m tg)	58 1

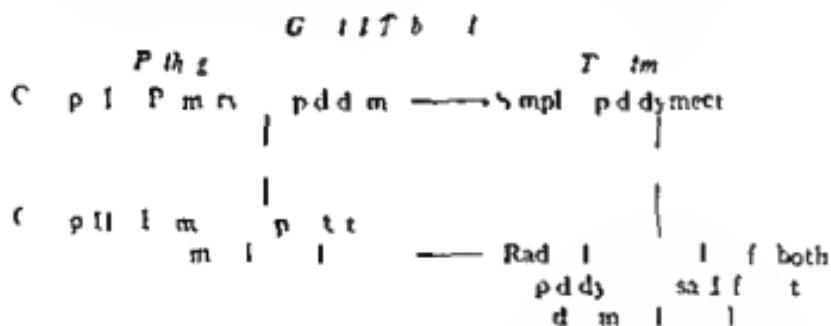
The results following the more advanced bilateral cases have not been so satisfactory. The surgical mortality in this group is very high many of the cases dying soon after operation from a generalized tuberculosis. When nephrectomy is done prior to an involvement of the bladder almost 100 per cent of the cases are cured. After the bladder becomes involved probably less than 60 per cent are cured. The persistence of bladder symptoms after nephrectomy is sometimes secondary to lesions

in the infected ureter. Often in the cases ureterectomy is indicated. In other cases the involvement of the bladder is so deep seated and the capacity of the bladder is coincidentally so limited that the patient is miserable because of frequency and pain or even the danger from hemorrhage. A still more serious consequence is the spread of the tuberculous lesion about the ureteral orifice and the lower ureter of the uninvolved side. This often causes sufficient obstruction to produce a dilatation of the ureter and a gradually progressive hydronephrosis of the remaining kidney. Three such cases have been relieved of this obstruction and attending misery by hydronephrectomy. The first case showed an increase from 5 to 50 per cent in phenol sulphophthalein output with complete relief of bladder symptom. The patient was free from symptom for four years when calculous colic in the kidney pelvis developed. In spite of the hospital a delayed and the patient was practically in comatose when nephrectomy was done. The activity of the kidney never recovered and the patient died of uremia nine days later. Autopsy of the kidney which had drained so freely was interesting in that it was free from tuberculosis. The second case lived comfortably for two years dying in the Emergency Hospital of acute bilateral pneumonia related to the tuberculosis. The third case is living and well three years after operation with good renal function and excellent control of urine. This patient was able to resume his work after having numerous small hemorrhages from the bladder which were easily controlled following the operation.

II GENITAL TUBERCULOSIS

Genital tuberculosis occurs markedly in the genital tube culminating in tuberculous cervicitis in the genital tract—no association with benign tubercles has been established. The incidence of genital tuberculosis in the United States is approximately 3.4 percent to 6.1 percent and the bimanual cervical examination with tuberculin is the best method of diagnosis. On vaginal examination the cervix is swollen, tender, and fluctuant with tuberculous discharge. On aspiration a gummy tumor may be found.

for renal tuberculosis. Careful analysis of the statistics both pathological and clinical supports the premise that renal tuberculosis be in one kidney and that bilateral infection except in miliary cases is invariably a late manifestation of the disease. Nephrectomy thus effects a cure by preventing a spread of the disease to other parts of the tract but the application of this principle in the treatment of genital tuberculosis meets with decided opposition because of the marked difference of opinion as to the probable site of the primary lesion in the genital tract. Two schools have arisen the one regarding the primary focus to be the epididymis the second regarding the initial lesion to be in the prostate or seminal vesicles. This dispute has created two distinct problems in the diagnosis and treatment of genital tuberculosis—one with respect to its pathogenesis and the other to treatment the latter being largely influenced by one's views regarding the former. The controversy may be summarized by the following diagram:



The argument of each school must well be considered in outline form:

First School

- 1 Primary to be in pddym or esophageal
- 2 When it becomes tuberculous by the hit and miss method
- 3 The tubercles can be tubercles of the pddym
- 4 Need less time to establish gp by setting in and a ced
- 5 English pddym is looked through
- 6 German pddym is recognized easily

th cl d p tt ec th m j t f case f ll g mpl
 pd dym meet ms
 7 T be cul f th m l e l d p tt ly gm ed
 I call th t vol m t f th pd dym P t call ll case se k
 t ff th pd dym (J D ll g B)

End nc fG or p II

Cf I—1 T be l pd dym t i

2 Cf cal vd ce f th p se ce ft b l th semu l des
 pro tat gt by th p ese f odies th t d f duse se
 h pd dym m f q t

3 Sympt m f e cul p tt ft p eed th ppe
 ft be cul pd dym t

4 Wh ev th pd dym u led th t be l th val
 t th gl b m d lg t t fet kn t
 se by f math th Wh th disease p d th pp
 pd dym th gl b m Iso first l d F m h gl b m
 t p d th body d gl b may I th d n t b cul
 pd dym t h 100 p t l ment f h gl b m

*P th logic—1 L f th pd dym i ly f d
 pe h rea t b re l l f semu l e l d p tt
 mpa ed by l th pd dym f eq tly po ed*

Wh th d ea l e th h l g l tra t th l th
 sem l cles d p ta g rally h th pp ra f b g m
 d ced d ld

3 L th gl b m f th pd dym ppea ld dm
 d d han those f th body gl b m Th pot th f i t
 sof d b eak d w

*Exp n l—1 M o-o ga m p t dl b bed f m th
 hra d earr d th ep dym*

T be l pd dym b be pod ed p nmentally by
 1 g th pd dym d th l t g th thra Th g m ca
 t lby ay f th l m f th h gh tpe t l by y f th
 l ph es f th a (h M Walk)

The above line of reasoning has existed without much modification
 at the International Congress of Lung Disease
 held at Brussels (1924) Group I Tuberculosis a thin man who
 is often debilitated and therefore weak and tired by
 their usual symptoms—Group I by J Dillig B m y and
 Group II by K n tb M Walk of London. While admitting
 that they presented by those who argue for the primary
 lesion in the pulmonary remote due to the tubercle
 to consider the factors underlying the malnutrition
 as more probably primary than the high H

Young has given this subject careful study for many years and has long been convinced from his clinical and surgical experience that the seminal vesicle or prostate is the primary focus of localization in the great majority of cases and it is because of this belief that he has advocated radical methods of treatment.

The statistics as to the incidence and extent of tuberculosis of the genital tract are rather unsatisfactory. In the first place genital tuberculosis is not nearly so frequent as renal tuberculosis, the incidence averaging 0.5 per cent as compared to 1 to 5 per cent in renal involvement. The high proportion of primary cases reported (Barney 44.2 per cent our own series 39.4 per cent) make it seem probable that autopsy studies of these cases would have revealed healed or hidden active lesions elsewhere. The average of various groups of statistics show the secondary cases to vary between 40 and 83 per cent with involvement found most frequently in the lungs and the urinary tract. The statistics from sanatoria are very incomplete as far as urologic records are concerned. The data show that pulmonary tuberculosis is cured in from 65 to 70 per cent of cases whereas in the small group complicated with genito urinary lesions the percentage of cures falls to 20 per cent. Briefly the morbidity of properly treated phthisis is 30 per cent whereas when it is associated with genito urinary tuberculosis the morbidity is as high as 80 per cent.

The extent of the disease in the genital tract varies markedly which would be expected in view of the difficulties of diagnosis. Simple epididymitis has been clinically reported in only from 10 to 15 per cent of cases. Involvement of the seminal vesicles alone shows an incidence of from 15 to 20 per cent. Leions in both have been found in 65 to 70 per cent of cases. It is important to note that these same statistics show an associated lesion in the kidney in about 50 per cent of all cases.

The initial or early symptoms of genital tuberculosis are not nearly so definite as in renal tuberculosis. The commonest finding is epididymitis evidenced by nodules which seem invariably to involve first the globus minor. The globus minor shows involvement in 100 per cent of cases the body of the epi-

66 1-1d

3 D d
1 C dt good f y ft wam t th df m
2 L tf m bservat
(2 f th b b d ph t m)

S mm y 12 case full d

61

6 dead

3 t t d

3 t t d

G p 2 C B k h S m I I I Show d E d f Im l m
C lly—U t t d T t d by S m pl E p i d y m t y
T t lca 17

5 C t t'd by add dyn. I m

4 Blt l h w g d c fbit l m l lt
1 Rght d l h w g d fbit l m l lt
2 Wll
2 Poo lt (wth ry good sa t mt tm t)
1 D d d s p t re t f mb l m

12 C + led + 17 x

10 V 1 1 d b l t II

1 Right 1 1 d

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$\Sigma p \text{ d} dy m = 1 - d$

4 Bit 11,

1 Right

31 ft

d gym

4 case

128

6 H d 8

3 B1 t 1 lit he less

4 U l t i m a t b

4 V It be I

1 H d h d ph

1 H d b d b d t my

1-10-12

SL-15000

On the first day of November, 1863, the
Confederate States of America were
represented by the following members:

Unit 4 Self-Test

2 A dead st be los
11 st be 11

11 f h lth y ft m t
11 till sa t m d poo dt d half y
ft xam t

5 mm y 9 C f II d

6 Al

3 D d

(5 of th 9 h d mpl pdd m t my)

2 Imp d

W se

t D d

G p 3 C f Wh I T t G t I T b I T t d b Rad I

B lat I Ep d dyd t my V t S m mal V let 3 ad

S m C P t IP t t tomy

T t I

13

2 L tf m lser t

9 Al

2 D d

1 D dth k p t pe t ly th t be I

1 D d 3 ft pe t fg f d be I

All f th 9 ca I good h lh ry g f m ght y t
m th ft p Th th th d p t l p t t my pe
f m d ll h d m ll h hpe df tm b wh h ll y
h 1 d

It is of course impossible to make any rigid comparison of the three groups of cases. The 13 cases treated radically showed much better results than those treated by simple epididymectomy or unoperated but it must be remembered that 12 of these cases were clinically free from tubercular involvement elsewhere. From the results of the 12 cases of Group III we believe the radical operation to be advisable where the seminal vesicle is involved clinically and there is no evidence of active tuberculous elsewhere as in none of the cases in Group II in which the vesicle was involved but untreated has there improvement been asatisfactory. In cases of Group III a high percentage radically modified gically. We suppose that the disease of the seminal vesicle and tubercles in the testis of the group of cases of tuberculous epididymitis alone (Group I). Many of the cases may show evidence of tuberculous seminal vesicle late and seminal vesicle can then be formed. One point should be kept in mind that after many years after the initial diagnosis and treatment.

The clinical record of genital tuberculosis is as follows:

an easy matter. Many subacute or chronic cases of non tuberculous infection are difficult of differentiation. Nodulation is a prominent characteristic of the lesion but some non tuberculous lesions are also nodular. Because of this difficulty we have made it the rule to perform epididymectomy first and to have an immediate pathologic examination made before proceeding to remove the vesicles. All of our 13 cases of radical removal have been confirmed by microscopic study.

CONCLUSIONS

Genital and renal tuberculosis occur associated with tuberculosis elsewhere and as a primary lesion unassociated with active tuberculosis elsewhere.

Renal tuberculosis at onset is unilateral and the best method of attack is by nephrectomy. Nephrectomy should have the precedence in unilateral renal involvement associated with active genital lesions.

Vesical tuberculosis may remain the only active lesion following surgery in both renal and genital case. Where this is so advanced as to render life miserable because of pain frequency and incontinence and where there is no active tuberculosis elsewhere temporary nephrostomy with permanent ureterostomeostomy may give relief and prolong life.

There are two clinical types of genital tuberculosis: (1) Where the more advanced or only lesion is in the epididymis; (2) where the seminal vesicles are involved with or without the epididymis. When unassociated with active lesions elsewhere the indication is epididymectomy for Type I and the radical operation for Type II.

With active lesions elsewhere the indications for surgery depend upon the extent of the associated involvement as compared with the genital or urinary involvement.

After treatment of whatever type all cases should be kept under control and observation for an extended period of time and all of the known clinical methods in the treatment of tuberculosis such as rest, feeding, tuberculin, sunlight etc should be used in conjunction with the surgical procedure.

CLINIC OF DR W B HOLDFN

DEPARTMENT OF SURGERY UNIVERSITY OF OREGON

URETERAL CALCULUS

T p t t h g th m m g ma d ma th ty
y f g y g h w p td g l o t f
th m 1 f t th right t Aft ad tw l d th t
th t t m d d h y pt m t dt k l t
th ght k l y w f d Th p m l d f th u t w f t d
t th k th l d f th k d y Th w dh d d
t gul l h p t y g At tm th
d l f f w d y d th b k p d l h g ll
m t sp th t f H h l b b e f t l h l t t k
S th h h b b g h t gp th pl Sh h b
f d t b b l p a t f th t m Sh h l t s o m w g h t h l t
t k Th t f th p l h t y q t m p r t t
P t f d g h x a m t th P l 98 bl dp
10/90 p l p b l th d d l ght g f t y f th h t Th
l t d m t th l l f th f m ght k d y
h h d g p Th g t x a m t h t d m th
l t f th g t h g t d Th h w m b e l
f l f g t th g f th l d f t ght t l t m
pos b l t pa th t p th g h t A th t p se f h
pp d f th t th d p y d w th l t t l t t
p l f t b h t t f th t t l d W
l j th t l l g h m p t d t th l l f th ght
t th tw l f th g

The sea t t sue from th first operation n the vault of the
vagina makes it hazardous to try to remove the stone through
the vaginal route. The tone being located so near the bladder
once it will be a little difficult to remove the ureter and stone
through the ext ape toneal mu cle splttin incision so we
will make a tight rectu incision of ample length. We find the
urete very ready and mobilize t from the m of the pelvi to
the bladder. Here we find our stone impacted in the lower end
of th ureter. We shall l p that sto e back up the ureter a

short distance now we have it well above the bladder. We now double clamp the ureter below the stone and cut the ureter between the two clamps. We shall cauterize both end of this ureter very carefully and laterate both end with chromic catgut. We shall mobilize the ureter as it runs under the ovarian vessels and behind the cecum. We shall free this ureter well up to its point of attachment to the abdominal wall. We are now closing up the peritoneum from the bladder to the cecum. Before we do this however we shall provide for drainage in this location. Retropertitoneal space does not stand infection well and there may have been some soiling of the wound by our manipulation. Although we have been very careful and have cauterized both end of our sever duette. To be on the safe side we shall leave a drain in the place where the ureter has been removed. We shall place our drain in the cavity—place one end of a long cigarette drain next to the bladder. Tie the upper end of this cigarette drain to the lower end of the ureter. We now have our drain back through the peritoneum and suture the entire peritoneal wound from the bladder to the post rostral side of the cecum. The upper end of our drain and the rest of the ureter lie in the pocket behind the cecum but entirely tapetorial. We shall close the abdominal wound without drainage.

Now we will turn over to the left side and mobilize the proximal end of the ureter. This is the fistulous tract that has been discharging for the last forty days. This you see is very difficult and hard and as you pull out the ureter we bring with it the upper end of the cigarette-drain. We shall leave this drain about ten days. At the distal end of the ureter whose wall is extremely thickened and incised is the stone a large and a very bean. Later the patient made an uneasiness and went home completely healed.

PLASTIC OPERATION ON PENIS

I k d th m N S t k dly p t t tod y th t
may se th lt f pl t pe t wh h dd hm l
g Th pat t w fifty y f g Wh h ft cam t se
J ry 1924 h port d th tt y rsp t th t fm h h d
i d h pe d g d t f bot m th A y bef
th h h d t ed lmp th d m fth p Rad m h d b
ppd d y t tm tg Th l fll w g th d m d
y h d h ld H bl t d th t d f fty Wl



Fig 518.—Th d d d pe d w th gh th t m d t d
t th p b d t th b se f th gl pe Th sc l k h
th p db th t t l

5 t saw h m J ry 1924 som m th st h d m b h
th ght t h ca m d l p g th y b f th p
O t d f th l calco dt h m t wa q t g t
O th d rs m l th pe j t t th j t f th body th was
l th f h ll d ll At ly th dg f th l
mooth b t post ly t d m d th k th p b Th h
f th p b t ly g d h t k f th p d p b
h d d f b m Th d bl d f m ty f th

pe th u a k d b g d t h g f m t h b W m ed th
 t l f th p e d l pot f th b d k u th p b
 g d ly d th l t th b f th p A th pat t
 h d r p d l t d pl ty f pl kin t f d th
 sc t m d w th d d d p e th g h th t l d f t d h gla d
 f th p t th t m t t m t d p e d t p t Th d
 J 5 1924 Th mp y g U t t (Fig 518) t
 ph t g ph f h It t k f m th l t
 Th p th l s xam t f th m d L h w d th y b
 d h l t b t f l d t h w y m l g cy
 J 5 1924 th k f th m loose d d th h p
 f g th p ly f m th m Th g f th p
 t h t t m t l k F t t l y th ma h d m h i d t
 t l s th t tw p f ly p bl t m gh k f m th
 sc t m t th t m f f th p d t l h f f t
 f g f th t t l

I have asked this man to come next day to show the effects of the unusual plastic procedure. The wound is healed the penis is not yet freed from the scrotum there is a little redundancy of the skin around the base of the penis but the man is perfectly happy and very well satisfied with the result. A fixed marking (result of the old burn five years) is still visible with no hair about the pubes.

We did not see it this afternoon of a tumor cancer because it is questionable whether it is a cancer but he did have a very noisy, itchy, burning ulceration. The contraction of the burn was producing considerable difficulty of the penis. The itching, burning and pain from the lesion and burn had made the patient extremely crabby. The removal of the damaged skin helped considerably and has all foretold the improvement from the original

APPENDICEAL ABSCESS OVERSHADOWED BY EPILEPSY

We p t th ca ll t t g h w the c m pl to f g t
dse se may b so p m t i h l g th t th g l d
goe g d

Th p t t m ed w ma t ty e yea t by o pa
t th g t f m ly b t r Th f ll g th d f t p t
ll a dphy cal f d g t k by th t

Sh h pa d so th ght d f th b k th t d t d
to th n l l th l g t ght Sh h g p dp th t
mb ss f th wh l l ft d f h body d h wh th call fit
wh h h lo sc ss nd ca ll t l f th ph t

Th p l p t f th h t h d h d dm f Th
pat t p e f ctly ll t t y g At th t t m h h d
tt kof e amplk pa nth m dd l f h bd m h h h l d
t th l w rght q d nt Sh w bed l d y t th t m
Wh h f t g t p sh tced so th b k th ght d
b t h t d t w k d f t f ly w ll pt f th
h b k S w k ft th b g g f h ll w h b g t b
t bl d w th g h t m h w ch l y cam h t 7 l k t
ght L t r th g d t w t t El m th g whi
est g ppe h t e d h l f t g b e m g b dg ad lly th h l
lft d f h body b m g l d Th im t d fit wh h
h i t se d t l f h ph t em g
f fiftee m t Sh th y l w y h t pt m th g h
m th t k ph f m b t g h Sh h h d f th p l l
ea h m th ce F r e m th g oct l f t t doc pt l h d
h oc d S th b h h d h ll df f ll w d b p f
persp t ev ry ght O t b m pl d fd d pot
b f h s Th w m p l p t f th heat t ght Sh
po t th t wh h w t k l y g w th p th bd m
th phy wh w b t th t t m g h hypod m f m ph
W b ll m t th h f h t t f th phy cl m t

Sh look d m H rs d y g t E pt f
i l b th d cay d d ca t th h th w g t Th e
pe l f d g th h t Th p l t w 92 th rwn the
heat wa g t Th bd m h w d masse d t d
O th b k h w light d t p l p t th ght de
f m th t f th l m t th tw l f th b O f t p t t w
p wh h d t d d th d f th th g R fl w q l
d t P t xam t w g t R pe ted W m
blood d p l f d e g t Ray f th h t d f th k d
gat Ray f th head d t l g m g t
C ll t f m th p l f d a g Th m ul

every few weeks had dictated the treatmen t the observers to the usual
tests. However, he suggested the possibility of it being
Bacillary appendicitis and tenderness in the right iliac diagnosis of per-
phlebitis abscesses had been considered by him.

The patient reported a temperature of between 99 and 101 F almost constantly for several months. We believe this patient originally suffered from acute appendicitis which was unrecognized by the physician who saw her first and gave her a hypodermic of morphine. We propose to go through the loin and drain a retrocecal appendiceal abscess. We predict that we shall find colon bacilli pus in this abscess for the following reason:

Originally she had a typical attack of appendicitis which had eleven days later got up but suffered more or less continually for the past year with pain and soreness in her right side. Three months after her original attack she had convulsions—Jacksonian type of epilepsy. These came every few weeks and because of them attention was directed to the brain. These convulsions have so obscured the original disease (appendicitis) that the patient has been unable to impress the observer with a lump and tender mass in the right loin. This mass is now obvious and the rigidity is marked over the right loin.

We shall now make an incision over the tender mass and we find quite a quantity of foul smelling pus. We shall put in drain. We have not opened the general peritoneal cavity. This is not a very large abscess although it has existed here for one whole year.

Can we explain the woman's epilepsy from these findings? Possibly although we are not certain the convulsions may be due to a chronic toxemia produced by the abscesses. She may have a metastatic abscess of the brain which may have a tumor of the brain or this epilepsy that she may have due to something entirely unrelated to her original disease—appendicitis.

Later autopsy showed a large gumma in involving the anterior region of right cerebellum hemisphere.

CLINIC OF DR. EMILE HOLMAN

FROM THE SURGICAL CLINIC OF THE STANFORD UNIVERSITY
MEDICAL SCHOOL

ARTERIOVENOUS ANEURYSM

An arteriovenous aneurysm or fistula is characterized by certain physiologic phenomena which make it one of the most fascinating and unique lesions in medicine. The following cases are presented as illustrative of their physiologic effects upon the circulatory system and of the principles underlying their surgical treatment.

C L-A Am ca lumb ma g d th rty y dm tt d
t La H pt l S pt mb 13 1926 se k g t eatm t f va cose
d se 1 f th l st l g B n g d th p h p t
mpla tw th f t th t tw ty f y g t th g f f i t h
t ed d pl t f th l st th g f m k f thru t A
ce h m hag d wh h w t ll d by t q t d by
t ung th d Sh tly ft th j ry h ted th ll p lpat
th l st th g wh h h b t h y p set th t tm I
th yea trv g th d th b d b se by mbe f
d et b ts h i gg t d y lt h tw th
d th l t f th th g tw ty f y g I th m th
peced g dm h h d t d ll g f th l st l g t th d f th
dy h b b d d d g t b d
I ec tyea d f t ympt f g ca d ff cy
h d ppea d S y g m h w mp ll d t p
k g d g d b ca f ea g h t f b eath m
p ed by g d ll w ght d t gth A w ll m k d dy p
w lk g ph l d l p d d b t ty w m a k d l y l m t d m
pa ed t th t f h c mp Sm k th tm ph h m
t)b cam q t d t g h ea f h h t f b th
I th t po t b h d f q thy ted feel g f f t ss d
eakn mpa d by bl d h h w mm d t ly l ed
by ly g tt g d m H l t b t b f l t th t
co sc ss rt d ly b ca se h s a d mm d t ly l th
f rt yea p d g d th h d d l p d g d l l of

in th right t h w bl t d t gu h yth g cept
light d d k ess w th th y

Th phy cal exam nat t ed bo t th I J g d th u lat ry
y t m (Fig 519) Th lf thigh ppe ed lightly la g than th right
th mif t p d g point b g L ft thigh 52.3 cm ght
thigh 50.4 O d gth fth I J g th l ft q



Fig 19—D I f heart d st ry p ximal h fi l
m p ed h lgh ease f lf hgh N t m l d
d sc lcat fl e lgd ar se

p m d th cumf f b calf eased f m 36 37 m
Th a small healing lce h p ct f h lf l w l g d
th t leg in t d tal h lf h ed th m l d m tled b n h d
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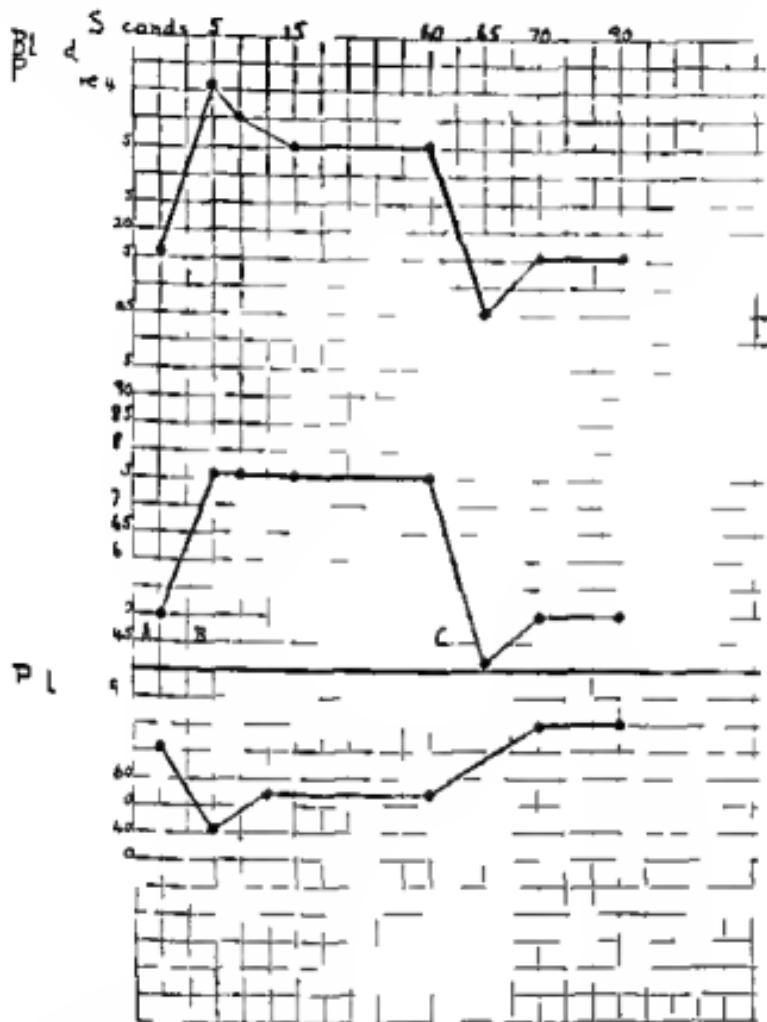


Fig 520.—V t g I blood p d p l l g d
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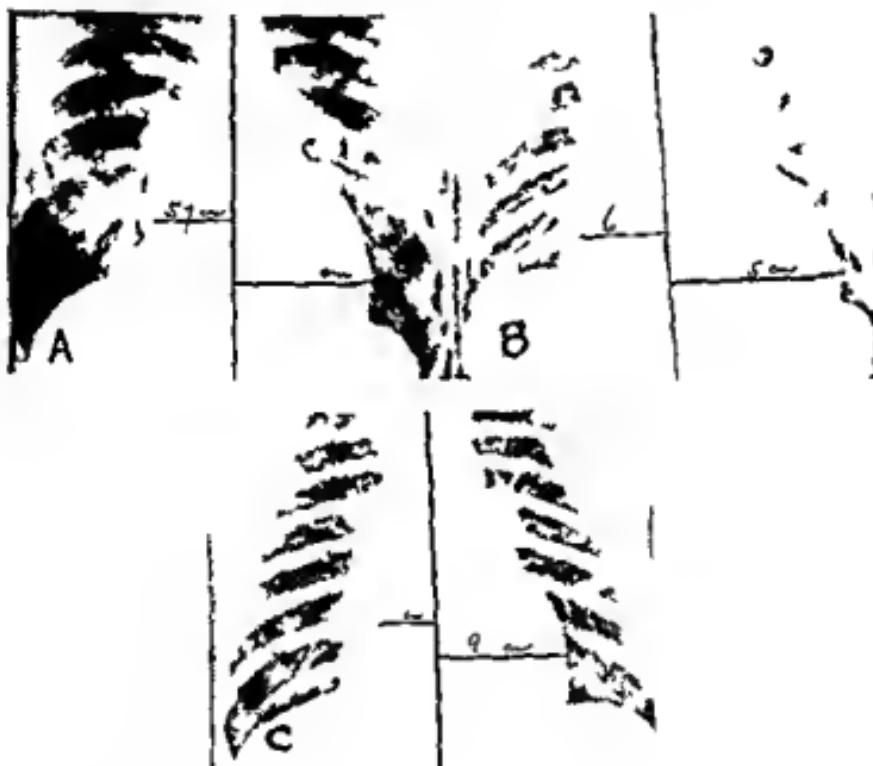


Fig 521.—S f heat A B f p t B m d t l f p
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pressure of 68 Seven hours following the excision of the fistula the systolic pressure was 134 diastolic pressure 96 with a pulse pressure of only 38 (Fig. 522) Eighteen hours after the second

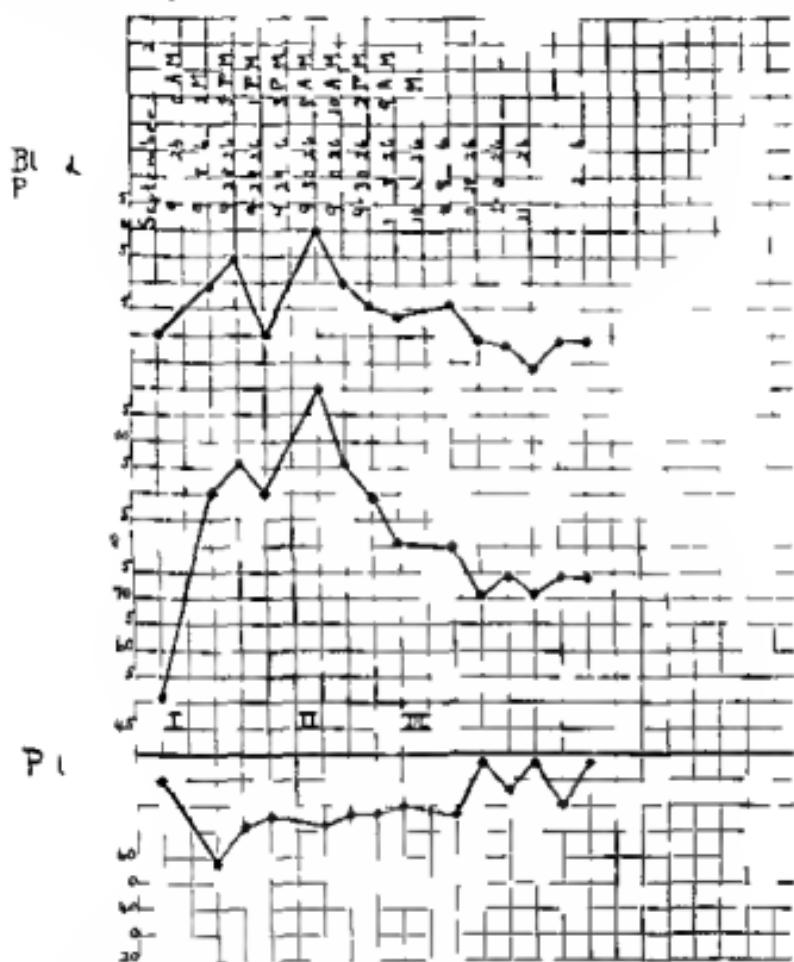


Fig. 522.—First time graph of blood pressure following excision of the fistula. The systolic pressure fell to 134 and the diastolic pressure to 96 with a pulse pressure of only 38. The second time graph shows a similar picture. The third time graph shows a gradual readjustment within the next 18 hours.

operation for resection of the femoral artery the systolic pressure rose to 140 and the diastolic pressure to 110 a pulse pressure of only 30 A gradual readjustment occurred within the next

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Comment—*Bl d pre d Psl Ob r f os* Befo
operation th ge ral blo dp ue a rded in th s
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pressure of 68 Seven hours following the excision of the fistula the systolic pressure was 134 diastolic pressure 96 with a pulse pressure of only 38 (Fig 522) Eighteen hours after the second

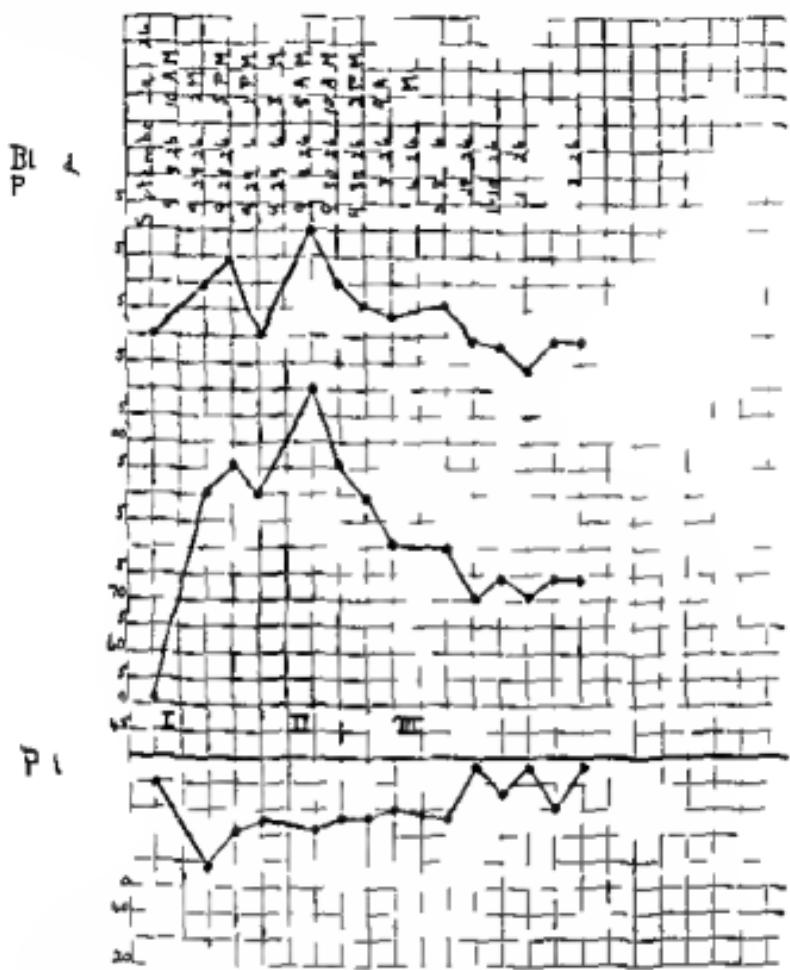


Fig 522.—Effect of ligating the blood vessels following reoperation for religation of the femoral artery. The systolic pressure rose to 140 and the diastolic pressure to 110 a pulse pressure of only 30. A gradual readjustment occurred within the next

operation for religation of the femoral artery the systolic pressure rose to 140 and the diastolic pressure to 110 a pulse pressure of only 30. A gradual readjustment occurred within the next

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Sl b mpla ed heal g occ red d th pat t il th hos-
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C mm nt—Bl d p e su d Pul Obser t : —Befo e
ope at on th gene al blood p sue reded in the m wa
con stently a ound 120 s t l c a d 52 d tol with a pulse

ob errations recorded in Fig. 523 show. The permanent elevation in diastolic level is the direct result of eliminating the large area of decreased peripheral resistance introduced by the fistula. The marked temporary elevation in systolic pressure which appeared within a few hours of the operation requires another explanation which is to be found in the physiologic

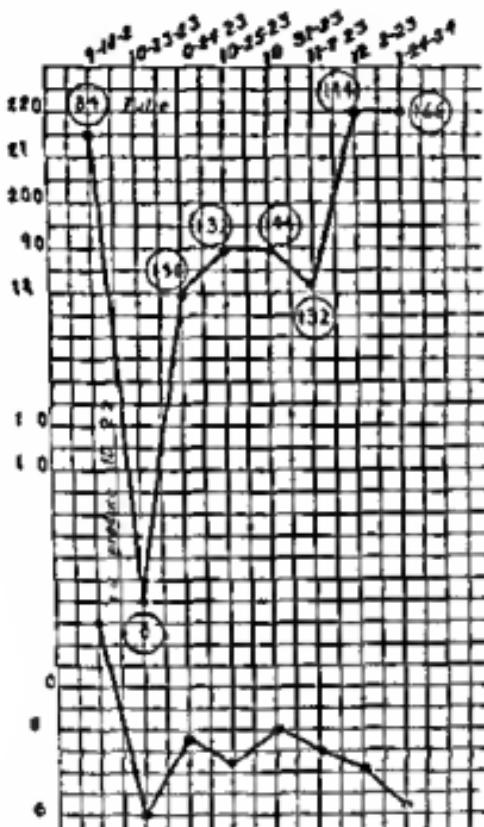


Fig. 54.—First time blood pressure measurements taken at 10-minute intervals. The first measurement was taken 10 minutes after the fistula was tied off. The second measurement was taken 15 minutes later. The third measurement was taken 20 minutes later, and so on. The systolic pressure was 100 mm Hg at 10 minutes, 150 mm Hg at 15 minutes, 130 mm Hg at 20 minutes, 140 mm Hg at 25 minutes, 135 mm Hg at 30 minutes, 145 mm Hg at 35 minutes, 132 mm Hg at 40 minutes, 142 mm Hg at 45 minutes, 138 mm Hg at 50 minutes, 148 mm Hg at 55 minutes, 135 mm Hg at 60 minutes, 145 mm Hg at 65 minutes, 132 mm Hg at 70 minutes, 142 mm Hg at 75 minutes, 130 mm Hg at 80 minutes, 140 mm Hg at 85 minutes, 135 mm Hg at 90 minutes, 145 mm Hg at 95 minutes, 132 mm Hg at 100 minutes, 142 mm Hg at 105 minutes, 130 mm Hg at 110 minutes, 140 mm Hg at 115 minutes, 135 mm Hg at 120 minutes, 145 mm Hg at 125 minutes, 132 mm Hg at 130 minutes, 142 mm Hg at 135 minutes, 130 mm Hg at 140 minutes, 140 mm Hg at 145 minutes, 135 mm Hg at 150 minutes, 145 mm Hg at 155 minutes, 132 mm Hg at 160 minutes, 142 mm Hg at 165 minutes, 130 mm Hg at 170 minutes, 140 mm Hg at 175 minutes, 135 mm Hg at 180 minutes, 145 mm Hg at 185 minutes, 132 mm Hg at 190 minutes, 142 mm Hg at 195 minutes, 130 mm Hg at 200 minutes, 140 mm Hg at 205 minutes, 135 mm Hg at 210 minutes, 145 mm Hg at 215 minutes, 132 mm Hg at 220 minutes.

factors controlling blood pressure. The establishment of a fistula between the arterial and venous systems results in the short circuiting of a considerable volume of blood directly back to the heart the volume depending on the size of the fistula. This short circuited volume of blood is lost to the rest of the body,

few weeks and when finally stabilized the systolic pressure again lay around 118 the same figure as before operation but the diastolic level was permanently elevated to about 76 with a pulse pressure of 42 as compared to a preoperative pulse press-

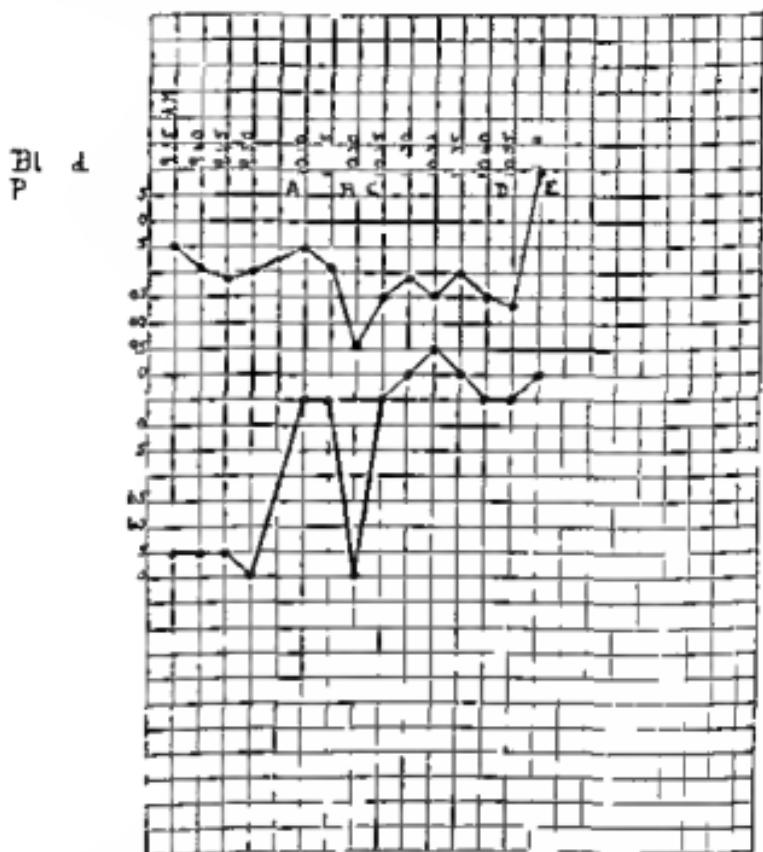


Fig. 53.—Marked fall in blood pressure during temporary occlusion of the abdominal aorta by a padded ligature. The pressure was markedly lowered in both systole and diastole. *A*, Before ligature; *B*, during ligature; *C*, after release of the ligature; *D*, during decompression of the abdomen; *E*, after decompression.

use of 68. This decrease in pulse was due entirely to the elevation of the diastolic level which occurred at the point of decompression of the abdomen. The

observations recorded in Fig. 523 show. The permanent elevation in diastolic level is the direct result of eliminating the large area of decreased peripheral resistance introduced by the fistula. The marked temporary elevation in systolic pressure which appeared within a few hours of the operation requires another explanation which is to be found in the physiologic

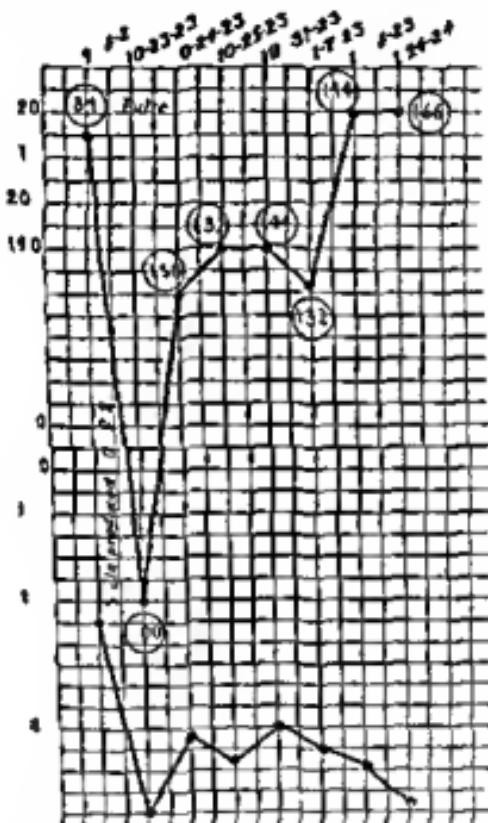


Fig. 524.—Fistula
permanently
filled by
polyethylene
tube. The
blood pres-
sure in the
artery is
markedly
elevated
above the
normal
level, while
the blood
pressure in
the vein
is reduced
below the
normal
level.

factors controlling blood pressure. The establishment of a fistula between the arterial and venous systems results in the short circuiting of a considerable volume of blood directly back to the heart. The volume depending on the size of the fistula. This short circuited volume of blood is lost to the rest of the body.

so far as the maintenance of blood pressure is concerned and experimentally it has been shown (Fig. 524) that the production of an arteriovenous fistula is followed immediately by a great fall in general blood pressure. A gradual recovery in systolic pressure occurs a recovery due to an increase in total blood volume equivalent to the amount short circuited through the fistula. The volume short circuited depends of course upon the size of the fistula.

When the fistula is again eliminated from the circulation the volume of blood formerly flowing through the fistula and the shorter circuit must therefore pass into the general circulation distributing all the blood of the body with blood. The immediate increase in blood pressure is due therefore not only to the elimination of the area of decreased peripheral resistance but also to the filling up of the normal circulatory system with an excess of circulating fluid.

This filling up of the normal circulatory system is only temporary and is manifested by a transient dilatation of the heart in excess of the dilatation already produced by the existence of the fistula. In a previous communication it was shown that immediately after the elimination of a large femoral fistula the heart was even more greatly distended than before. This overdistention subsided within twenty-four hours. In the present instance a very similar temporary postoperative dilatation occurred (Fig. 521) which subsided within forty-eight hours to the preoperative size. This observation is of the highest importance. Unexplained deaths have occurred immediately following the operation for the removal of a fistula and these may well be the result of an excessive cardiac dilatation. Measures to prevent such an accident may occasionally be found necessary should circulatory failure seem imminent following the excision of a fistula. Ough measures would be the generous removal of blood by venesection since the persistent and dilatation are the direct result of diverting a large volume of blood into the normal circulatory channel by the elimination of the fistula. Interestingly enough such dilatation of the heart of the circulatory system persists in this patient.

before operation by the observation that the vessel of the retina and optic disk were obviously larger when the fistula was temporarily closed as compared to their appearance when the fistula was open.

Following operation there is a gradual diminution in the volume of circulating fluid. The general blood pressure fall (Fig. 522) and the heart gradually shrinks to a normal size (Fig. 521). The first reduction in volume of circulating blood is probably due to a diminution in the plasma volume with a resulting concentration of the cellular element of the blood. Evidence of such a regulatory process was obtained in this instance by a study of the cellular elements and of the chemical elements of the blood. The unexpected bleeding into the wound and into the tissues during the first twenty four hours after operation from the incompletely ligated femoral artery somewhat interfered with the studies but the following observations are suggestive of a concentration of the blood following elimination of the fistula.

On September 19th when the patient entered the hospital a hemoglobin of 70 per cent was present with a red cell count of 5,000,000. On September 28th eight hours after the elimination of the fistula by operation the red cell count was 5,990,000 and the hemoglobin 112 per cent. Twenty hours after operation a red cell count of 5,840,000 was noted with a hemoglobin of 108 per cent and twenty four hours later most probably due to the hemorrhage into the wound the red cell count had dropped to 4,400,000 and the hemoglobin to 86 per cent.

Similarly the total blood chlorides just preceding the operation were 470 mg per 100 cc of blood. Two days later they totalled 445 mg, and three days later 471.8 mg following which they again returned to the preoperative reading. The evidence is admittedly meager but it suggests a temporary concentration of the cellular and chemical element of the blood through a reduction in blood plasma.

The patient also presented a startling neurologic phenomenon. When vision in the right eye had been practically absent for fifteen years (the fistula having been present twenty

four years) within five weeks after the elimination of the fistula vision began to return and a letter from the patient six months later stated that the vision in the right eye was as good as that in the left eye. It is difficult to state what association if any exists between the loss of vision and the lowered diastolic pressure the latter being the only altered factor which could possibly have affected the eye. The sudden attacks of dizziness and weakness noted in the erect posture were probably dependent upon cerebral anemia. Could diminished arterial supply account also for the dimmed vision?

In a previously described instance a gradually increasing seminated clerois developed simultaneously with the gradually increasing circulatory difficulties due to the presence of a large femoral fistula. It was felt at the time that the two conditions probably existed quite independently of each other but the presence of a neurologic phenomenon under similar circumstances in a condition of extreme urgency suggests a probable relationship between the two conditions. Both patients presented in the erect posture the sudden attacks of weakness and faintness without loss of consciousness, the one falling to his knees and the other to the ground precipitately in following consciousness.

CASE II.—A young lad of 11 years, admitted Lan Hospital March 30, 1919, two and half months after having had a right hemia sed by small penknif. At the moment of injury he was greatly shocked and lost a pint of blood. He was bleeding from the nose. The child applied the penknife to the hand, the finger being cut so it could be applied by himself. There was a severe pain but no loss of consciousness and further bleeding occurred. The hand remained numb and became greatly swollen and later appeared at the black and blue discoloration. The stiffness and stiffness of the right limb kept him bedfast two weeks. During his month's swelling greatly diminished though appearance of the eye of small penis became the main difficulty. The right hand was described by the doctor as being enlarged. The tumor gradually became larger and more painful and it was because of the great pain so great that medical advice was sought. A lump had been present in the right testicle for some time. The right hand was very stiff and unable to move. Examination of the affected leg revealed that an medial to the right thigh 9 cm below the knee there was a palpable mass 2 by 3 cm. in diameter. The hand was pale and pulseless. The

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 (Fg 525) Alth gh th fit l h d be pes t ly tw d h If
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Fg 525—T l tg g m Ca II A D fit d l tt f
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 th fit l

Operation—The femoral artery and vein were isolated proximal to the fistula and controlled with a tape ligature. The artery proximal to the fistula measured 8 mm in diameter the vein 9 mm. There seemed to be no difference in the size of the artery above and below the fistula.

The opening in the artery did not enter the vein directly but entered a large false sac which was located in the soft tissues below the sartorius muscle. This sac measured about 4.5 cm in

diameter. From it led a second opening into the femoral vein completing the short circuit from the arterial to the venous systems. The artery and vein were ligated and divided proximal and distal to the fistula with excision of the fistula. The color in the right foot was excellent following ligation. The wound was closed completely without drainage.

Several interesting observations were made after the operation. Immediately after ligating the artery the systolic blood pressure rose from 110 to 128 where it remained for about twenty four hours when it subsided rapidly to the preoperative level. On discharge twelve days after operation the systolic pressure lay between 110 and 120 and the diastolic pressure ranged from 70 to 80 mm. of mercury a decrease in pulse pressure of 10 to 20 point. There were no significant changes in pulse rate.

Following operation the blood picture showed some remarkable changes indicating a temporary concentration of the cellular elements. A red cell count of 4,850,000 per cubic centimeter before operation rose on the evening of operation to 5,200,000 dropping within twenty four hours to 4,900,000. On dismissal he had a red cell count of 4,700,000.

The child was discharged cured two weeks after admission walking with full limp. Within two weeks after operation the heart showed a definite diminution in size. The following measurements show: Right transverse diameter 31 cm. left transverse diameter 63 cm. biliou diameter 11 cm. (Fig 525). It is interesting that cardiac dilatation was demonstrated within two and one half month after the production of the fistula.

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Operat on—Und r local anesthe ia the bifurcation of the carotid wa expo ed nd the exte nal and internal carotid ar teri isolated The internal carotid measu ed 10 mm in di ameter th e tern lcarot d m a u ed only 6 mm Both vessel s r l ate l os I tl company ig zze n ljug l r z z

Following these ligation the patient stated that the bruit was very much decreased but that it had not entirely disappeared. As this was what had been expected from our preoperative examinations nothing further was attempted and the wound was closed.

The operation was followed by a fair degree of headache which persisted for several days. There were no paroxysms of tinnitus or weakness on the side opposite the ligated carotid and no mental disturbances. The blood pressure rose immediately after the operation to 138 systolic 80 diastolic fourteen hours later to 140 systolic 90 diastolic and twenty-four hours later to 140 systolic and 84 diastolic. Within thirty-six hours more it had again dropped to 128 systolic and 74 diastolic around which figure the pressure remained the easiest.

Subjectively following the operation the noises in his head were reduced by about one half but a systolic bruit was still present. This was easily controlled by pressure of the fist indicating a connection between the arteries and the nevus by way of the circle of Willis.

There then followed a period of convalescence during the next four months characterized by alternately periods of disappointment and satisfaction with the results of the operation due to the persistence of the systolic bruit, the frequent headaches and for a brief period double vision due to a pinching of the right external rectus. The latter difficulty gradually disappeared through the gradual return of the normal function of the eye. Obj ectively at this time he could hear only a faint systolic murmur over the site of the original thrill and he could hardly palpate the thrill too well and appeared.

One of the important points of interest in this case is the reversibility of the internal and external carotid arteries on one side without the development of cerebral disturbance. This result may perhaps be attributed to the numerous ligatures of the jugular vein. Whether it is of both

carotid arteries is contemplated one should also ligate the accompanying jugular vein.

Discussion—Although not recognized until recent years there is no longer any doubt that in most instances the peripheral arteriovenous fistula must be eliminated if the patient is to avoid certain local and systemic effects which threaten not only his comfort but also his life. The local effects are dependent upon the arterial pressure in the venous system which manifests itself by large varicosities often complicated by ulcers. A fistula of the subclavian vessels has been accompanied by varicose ulcer of the hand and forearm. The main complaint of the patient may center about the varicosities particularly when they are on the lower extremities. In one instance the presence of a varicose ulcer prompted the house staff to undertake an operation for the removal of varicose veins the real lesion a large femoral arteriovenous fistula being undiscovered until the patient was under ether. Remarkable edema and swelling of an extremity have been observed totally incapacitating the individual.

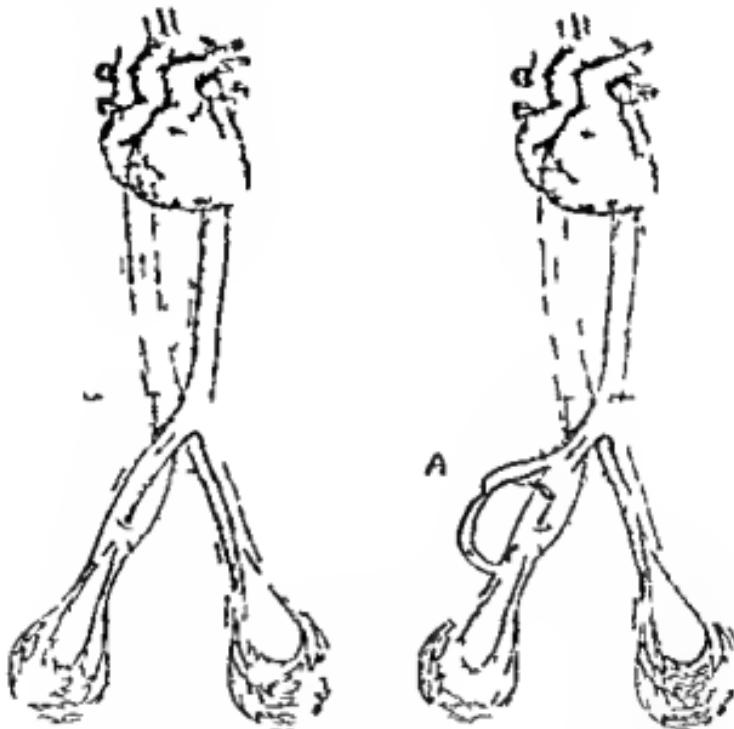
In addition to the local disturbance grave systemic effects may be produced by the cardiac dilatation which follows the large fistula of long duration. Reid has recorded several cases in which death followed cardiac decompensation due directly to a large peripheral fistula.

Granting that a fistula should be eliminated from the circulation our next problem is when and how this should be done. Reid has shown that some fistulae tend to heal spontaneously and has advocated waiting six months following the accidental production of a fistula to determine whether or not the opening will close. Holman found however that only small fistulae tended to heal spontaneously whereas large fistulae did not. If there is early evidence that the heart is dilating that the thrill and bruit are increasing rather than diminishing in intensity and if variations in blood pressure and pulse on closing the fistula can be produced soon after the establishment of the fistula and these variations become more rather than less pronounced one may be certain that the opening will not close spontaneously.

and must be eliminated by operation to avoid further effects upon the circulatory system.

In operating upon this lesion there are certain fundamental principles which must be observed. To neglect them is to invite disaster or failure to cure the lesion.

1. Ligation of the artery alone proximal to the fistula is absolutely contraindicated. The accompanying diagram



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was occluded. It is obvious that until this is done the collateral circulation (Fig. 526) will find it why not at the pilular bed distal to the fistula but the whole fistula blocks the heart.

When confronted with a nevus in the form of the

utmost importance that accurate studies be made to determine whether the lesion is a simple sacculated aneurysm or an arterio venous fistula. If the latter lesion is overlooked and the usual treatment for simple aneurysm is applied namely proximal ligation of the artery there is grave danger of gangrene beyond the aneurysm. The distinctive features of a fistula as compared with a true aneurysm are (a) The *continuous* thrill and bruit intensified during systole (b) The slowing of the pulse and rise in blood pressure on digital closure of the fistula. This sign is not always present in the early days following the establishment of the fistula and may be absent if the fistula is small. Occasionally it may be detected only by the electrocardiograph (c) The high oxygen content of arterial blood withdrawn from the veins distal to a fistula as compared to venous blood obtained elsewhere. This additional distinguishing feature has been suggested by Pemberton⁷ of Rochester.

2 Ligation of the artery and vein proximal to the fistula only is also contraindicated. Even though gangrene may be avoided the fistula is not cured by this operation. Collateral arterial and venous channels open up to keep the lesion active in its capacity of transferring arterial blood into the venous system.

3 Ligation of the artery and restoration of the vein may lead to gangrene due to the great disproportion between a dilated tortuous venous system and the meager collateral arterial circulation. What little blood passes through the collateral bed finds its way promptly into the dilated venous bed without passing into the distal arterial bed.

It is generally agreed that the safest and most effective method of dealing with this lesion is quadruple ligation with excision of the fistula. One can then be certain that no collateral channels will open up to restore the local thrill and bruit nor will there be any grave danger of gangrene.

Matas has elaborated upon his principle of endoaneurysorrhaphy by advocating restoration of the artery through an opening into the vein. This occasionally feasible but in some fistulae of long duration there have been found calcareous de-

pois in the tissue forming the rim of the fistula and in the presence of such calcification the procedure would be most inadvisable. The subsequent development of a simple aneurysm at the site of the degenerated arterial wall has been observed.

Large fistulas of long duration are frequently accompanied by evidences of beginning cardiac failure such as tachycardia and dyspnea on slightest exertion due to an excessive dilatation of the heart. Closure of the fistula by digital compression or by operation may result in an even greater dilatation of the heart as in Case I with consequently an even greater than in of an already attenuated cardiac muscle. This additional dilatation may be just sufficient to change an incipient cardiac decompensation into an actual one. This state may be recognized before operation by noting what occurs when the lesion is closed by digital compression. If instead of slowing of the pulse and a rise in blood pressure the occurs a marked tachycardia and an unchanged lowered blood pressure it is a good indication that the heart would be temporarily placed under a great strain if the more or the fistula is closed by operation. Cases recorded in which operation has been decided to be safe in this instance. Such decision is denying the patient his only hope of recovery. One should rather proceed on the basis that the cardiac decompensation purely a mechanical one due to the increased output imposed by the abnormal opening, and that the elimination of the opening by operation offers the only hope for complete relief. Bear in mind the experimentally proved fact that the amount of blood volume in the presence of the fistula and that this is increased volume of blood which is the immediate cause of the temporary exhalation that occurs in 1 minute of the fistula the rational procedure (the absence of fixes easily 1 liter of blood during the operation itself) would be to perform a neostom and to move at least 500 cubic centimeters of blood during the operation immediately after the fistula had been eliminated. It seems highly probable that with such a quantity of blood in the fistula with well advanced signs of cardiac dilatation could be operated upon with safety if done before the operation.

An additional precaution after an operation for the elimination of a large fistula accompanied by a marked dilatation of the heart is a prolonged convalescence with rest in bed. This is necessary to enable a myocardium long dilated and long accustomed to a low diastolic pressure to adjust itself to the altered conditions of a marked increase in diastolic pressure. Figure 529 gives an excellent illustration of the extent of the increase in diastolic pressure immediately following the operation in Case I. Such an increase might easily impose a considerable strain on the weakened musculature of a greatly dilated heart. Not sufficient attention has been paid to the possibility of myocardial failure due to the burden of the increased diastolic pressure following the repair of the fistula. A premature return to normal or excessive activity must be avoided by imposing a period of enforced rest under careful supervision for weeks and perhaps for months after the operation. Thompson has recorded an instance in which a return to normal activity within several weeks after the operation resulted in all the signs of a cardiac decompensation. A prolonged rest entirely restored the patient to good health.

Summary—Careful investigations are necessary when confronted with an aneurysm to determine its exact nature whether it is a simple sacculated aneurysm or whether there exists an opening between the artery and vein.

The characteristic features of the arteriovenous nevus are (1) a thrill and bruit continuous throughout the cardiac cycle but intensified during systole (2) transient increase in blood pressure and fall in pulse rate on closing the fistula by digital compression (3) high content of oxygen in the venous blood obtained from the veins near the lesion compared to the oxygen content of blood removed from a more remotely situated artery from the aneurysm.

If the lesion is an arteriovenous communication it is important never to ligate the artery alone proximal to the fistula as is so frequently done for the cure of a simple aneurysm. Such proximal ligation is contraindicated because of the danger of gangrene of the limb beyond the fistula.

Arteriovenous communications should be eliminated because of the development of cardiac dilatation. Quadruplication of artery and vein proximal and distal to the communication with excision of the fistula is the operation of choice.

The elimination of a fistula may precipitate a cardiac decompensation incident to overdistension of an already dilated heart. To avoid this excessive dilatation venous ejection may be necessary in the course of the operation to withdraw the increased volume of blood which has accumulated in the circulatory system during the existence of the fistula.

A prolonged convalescence after operation is necessary to avoid the myocardial strain which might result from the increase in diastolic pressure accompanying the elimination of the fistula.

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CLINIC OF DR O F LAWSON

SWEDISH HOSPITAL SEATTLE WASHINGTON

CONGENITAL HYDRONEPHROSIS

The patient presented with a complaint of frequent urination and nocturnal enuresis. She had been constipated for several months. There was no history of pain or fever. She had been taking digitalis and potassium chloride. She had been taking digitalis and potassium chloride. She had been taking digitalis and potassium chloride.

Physical examination showed a well developed female with a normal blood pressure. There was no evidence of heart disease. The abdomen was soft and non-tender. There was no evidence of liver or spleen enlargement. There was no evidence of kidney disease.

Differential diagnosis included congenital hydronephrosis, renal calculi, and pyelonephritis. The differential diagnosis included congenital hydronephrosis, renal calculi, and pyelonephritis. The differential diagnosis included congenital hydronephrosis, renal calculi, and pyelonephritis.

(a) The patient has a palpable mass in the right upper quadrant. This is a normal finding. (b) The patient has a palpable mass in the left upper quadrant. This is a normal finding. (c) The patient has a palpable mass in the right lower quadrant. This is a normal finding. (d) The patient has a palpable mass in the left lower quadrant. This is a normal finding.

Physical examination showed a well developed female with a normal blood pressure. There was no evidence of heart disease. The abdomen was soft and non-tender. There was no evidence of liver or spleen enlargement. There was no evidence of kidney disease. There was no evidence of kidney disease.

The patient has a palpable mass in the right upper quadrant. This is a normal finding. The patient has a palpable mass in the left upper quadrant. This is a normal finding. The patient has a palpable mass in the right lower quadrant. This is a normal finding. The patient has a palpable mass in the left lower quadrant. This is a normal finding.

I considered it unwise to subject her to extensive renal and cystoscopic examinations as she needs all her strength to un-

dergo this operation. We know that she has in normal urine. The tumor is firmly fixed in its position and does not have the mobility that we would naturally expect in a pliable tumor. We will make an ample right rectus incision extending from the costal margin to 2 inches below the umbilicus. We open the peritoneal cavity and examine the right kidney. This we find apparently normal except that it is slightly hypertrophied.

On the left side there is a tumor and we find it to lie entirely extraperitoneal. The spleen above the tumor is pushed inward. The tumor occupies the position of the kidney although it extends well above and below the kidney area. Fluctuation due to fluid can be noticed on palpation. I think we are justified in saying that we are dealing here with a hydronephrosis of the left kidney. It is quite evident that the kidneys tissues have been completely destroyed in the development of the tumor. There is no line of cleavage to facilitate the dissection of the tumor as it is firmly adherent to the parietal peritoneum on the inner surface and to the lumbar muscles and fascia on the outer surface. Therefore it will be necessary to move the tumor by sharp dissection. I would like to move the tumor intact but it will not be possible on account of the fact that I am forced to drain the fluid before attempting to move it. As the descending colon just in front of it is quite very careful about it there is considerable bleeding on the surface of the organ which will be reflected from the surrounding tissue.

We are now well down to the base. The site is located and I can feel a dilated pelvis at the upper end of the ureter. We will proceed cauterizing the point in this mass of adhesions. It is rather difficult to locate the renal pelvis which must not be torn. It is surprising that I am unable to locate any large bleeders in this area. In the meanwhile the renal vessel should have been thrombosed only a moderate amount of oozing.

We have now successfully removed the tumor in normal sac from which the fluid has been evacuated. We had done an examination of the gross specimen in much detail of the kidney with complete but not to the extent of

junction. The opening between the pelvis of the kidney and the large hydronephrotic sac is about 2 mm in diameter. We will send this to the laboratory for examination and proceed with the closure of the abdomen in the usual manner. On account of the enormous amount of raw surface present in the cavity we will place 2 small cigarette drains to take care of the secretions during the process of healing.

The pathologist confirms our diagnosis and reports that there is a complete obstruction at the ureteropelvic junction. The size of the gross specimen after being stuffed with cotton measures $25 \times 15 \times 10$ cm and the pelvis measures 8×3 cm. The cystic wall 2 mm thick. No renal artery is present. Apparently it received its blood supply from the stellate arteries of the kidney capsule. The fluid drained from the kidney sac is a thin watery fluid in which many cholesterol crystals are seen suspended. Section of the cyst wall shows but an occasional tubule and a few partially formed glomeruli.

Diagnosis—A cystic kidney due to imperfect blood supply and obstruction of the ureter (Fig. 527 p 1440).

Discussion—It is quite evident that we have here one of the many congenital abnormalities of the kidney. An interesting factor is that there is no renal artery and vein in this kidney. Possibly there were renal vessels in fetal life but they must have been completely obliterated due to the obstruction of the ureter and the consequent formation of the hydronephrotic kidney of such enormous size as to cause pressure on the renal vessels or there may have been a congenital absence of the renal artery and the kidney received its blood supply from the stellate arteries of the kidney capsule. It is apparent that an imperfect blood supply plus the obstruction of the ureter contributed toward the development of the enormous hydronephrotic kidney we find in this case. This theory would be supported by the work done by Hinman and Morison in experimental hydronephrosis published in *Surgery, Gynecology and Obstetrics* of 1926. They show clearly the importance of the interference of the blood supply in the development of hydronephrosis. Their conclusions are based on a series of experiments on animals.

Hydronephrosis resulted in all cases in which the ureter and a branch of the renal artery were ligated.

While it is quite impossible to state definitely that there was a congenital absence of the renal vessel, it is quite evident however that the child must have been in fetal life a fairly normal kidney. Otherwise there would not have been sufficient secretion for the development of the enormous tumor felt at birth and we would find now an atrophied non functioning kidney which would never have been observed by the mother and the attending physician.

I feel that theapeutically we can feel reasonably assured that this girl will recover from this operation and probably will have no further trouble as the result of the abnormality. The other kidney is functioning well and capable of doing the work of both kidneys.

HYDRONEPHROSIS DUE TO AN ANOMALOUS RENAL BLOOD VESSEL.

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Our first step shall be an oblique incision parallel with the quadratus lumborum muscle extending high up into the costovertebral angle avoiding the ilioinguinal and the iliohypogastric nerves. We have secured a good exposure of the field. As I am opening the false capsule of the kidney I find considerable adhesions between the capsule and the kidney undoubtedly due to the many previous attacks he has had.

The kidney is now well exposed and our diagnosis is verified. We can plainly see the suspected anomalous blood vessel rising in the ureteropelvic juncture. It is a renal artery coming from the abdominal aorta and entering the kidney at the lower pole anterior to the ureter (Fig. 528). At this point the ureter is bent on itself thus forming a kink. There is no doubt that the etiologic relationship of the blood vessel is the only visible cause of the renopelvic distortion we find here.



Fig. 7.—La. malph. morph. 2. f hyd. ph. t. ld. 3. th d1 t d
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Fig. 8.—R2t. f. sel. h d1. f pi. f ld. y

The kidney is slightly enlarged and the pelvis of the kidney dilated somewhat hanging over the accessory vessel as if this were a suspension bridge. However considering the fact that this kidney is still capable of performing two thirds of its normal function we will not disturb it but will confine our operation to the exterior of the anomalous vessel. It is my opinion that in due time this kidney will regain its normal functional capacity as there is no indication of extensive degeneration of renal tissues.

Through ligation and section of the vessel we have removed the main cause of renal obstruction and by loosening up the adhesions we may well hope to restore the normal anatomic condition in this area. In order to slightly elevate the kidney and thus reduce the pressure on the ureteropelvic portion before closing the field of the operation I will take a tuck in the false capsule of the kidney at the lower pole.

Discussion—Irregularities of the renal blood supply have been observed for some time. Quain states that 25 per cent of dissected bodies show an anatomic variation. Branches of the renal artery or an accessory artery instead of entering at the hilum sometime reach and penetrate the kidney near the upper or the lower end or on its anterior surface. Sometimes it is difficult to determine whether the anomalous vessel is from the aorta itself or from the renal branch. Generally such vessels as we see today run anteriorly to the ureter and enter the lower pole.

Merkel reports a few cases in which the vessels were found posterior to the ureter. Unless such variations are so situated that they cause obstruction to the pelvis or the ureter they naturally do not attract our attention and are only discovered during exploratory operations or at autopsies. All surgeons do not believe that a vessel ventrally placed in relation to the ureter may cause hydronephrosis but all agree that when dorsally situated may cause such a condition.

We cannot ignore the fact that mild grades of intermittent hydronephrosis are often found due to a definite kink in the ureter caused by an anomalous blood vessel that

extend from the renal vessel or aorta to the lower pole of the kidney. Generally after ligation and section of the offendin vessel the patients make satisfactory recoveries and show no tendency for recurrence of the condition.

There are some who do not believe that the excision of the vessel will assure satisfactory results and that a subsequent removal of the kidney will be found necessary. Undoubtedly the prognosis will depend largely on the amount of destruction of the renal tissue. It is my rule to give the kidney a chance to assume its normal function if its functional capacity is not lower than half. Others believe it may be advisable to remove the affected kidney at the primary operation.

CLINIC OF DR CHARLES D LOCKWOOD

PASADENA HOSPITAL PASADENA CALIFORNIA

ABSCESS OF THE LUNG

IMPROVED methods of diagnosis safer methods of anesthesia and new developments in technic have contributed much to the treatment of pulmonary suppuration. The subject is of increasing importance because of the large number of operations being performed upon the throat and nasal sinuses. Recent studies by Whittemore¹ and others have shown that 50 per cent of lung abscesses follow such operations. Many of these lung infections fall into the hands of medical men or surgeons weeks or months after their infection often neither the patient nor the doctor connect the infection with the operation but assign it to a cold influenza or other more recent cause. It is not uncommon for the specialist who performed the operation to be ignorant of the subsequent lung infection and to be skeptical of the etiologic relationship between it and the nose and throat operation. Two such cases have come under my observation in the past year and are here reported.

Operations upon the nose and throat have been considered too lightly in the past and have been undertaken without sufficient preliminary examination and preoperative care. It is still the common practice among nose and throat specialists to operate upon their cases with only a perfunctory preliminary examination and usually with no preoperative preparation. Such patients rarely remain in the hospital more than a day or two and in many instances are not seen by the specialist after leaving the hospital or at most once or twice at his office. In the large majority of cases the results have been satisfactory but the increasing number of late infections coming into the

hand of the surgeon strongly suggest greater care not alone at the time of operation but also in the preliminary examination and in the postoperative care. This is the most important preventive measure in lung infection. Patients should be observed for four weeks.

Diagnosis: (a) History of the case: special attention should be paid to the diseases of childhood, recent attacks of influenza, operations and aspiration of foreign bodies. (b) Physical examination. The usual method of physical examination should be employed but they are very often misleading. Auscultation and percussion will many times yield no physical signs. At other times when the abscess cavity is filled they will reveal the signs common to the plain x-ray film taken stereoscopically in the anteroposterior position and in the lateral position will often show increased densities and changing fluid level pathognomonic of a subacute abscess (see Figs. 529 and 530). The greatest contribution to diagnosis of lung abscess is the injection of lipiodol x-ray taken after this procedure will definitely outline the suspected abscess (see Fig. 533 and 534).

REPORT OF CASES

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ppe P t gaud ll t l d d sch g d
ppa en l d b th b s g r d ll y fill d d h m d
t th Sa m T m pl th f h c se trapl l h
pl ty ll b essary t ll p th gd ll c



Fig 529—Up ght po t mp so wth F 530 d m t t h ft g
fl dl l



Fig 530—R t r e t mp so wth F g 529 d m t t



Fig. 31—Ra film 1 weeks post-operative showing ppe 1 of
sol da ed h hyd p m h rae.



Cs II—M M M A f l g d t t Th p t t
 h d t ll t my th l tt p t f S pt be 1927 l g l s
 th Sh l ft th hosp t l t f st p c t g t tl d se
 sh phy T th d ft h t lh h l l p d
 h t h ght f t beg th h l h ght pa
 b l ft h t Wh by D J S H l be lt t h w
 t m ly n d r y ll
 Exam t l t p l j t t t l th t ft d
 cult t m t al l ft pp l l dm f l l th d



Fig 533.—R film f l p d l B h t m l t pl II 1

th t l h l f th l f b t l p pe th fl t
 h f b d j b l w h sc p l d g f
 dt h l lary l R y fil f th b t h ed th fl dl wd
 th pl l y d l d t f th ppe l b
 Ra l g os P m bsc f l f ppe l be h p mo
 th d d d h
 T tm Th h f t p ted l lightly t b l f d w th
 d h h t f l t P t t dt hgh f v
 l t Th f h ght bed t l g bsc b t

fill ed I D se lnt ft p fill gt
 blct my Th p fill by I f t th raco m d
 d g fec d y bce se b th h lmb fasc T blood
 tra f ec ssary t m h sep d p f d
 (Fig 531 3)

C III-M F L g th t ev Th pt t d
 t p l g l perat Agu 196 po h f t l d
 t l l g l esth O k ft h perat h began
 co gh g f tly t perat m t l 103 F h ll ea d
 ymp m fl g fec H ph D Ch l R C l (Sel)



F 534 - I bl f l p t f ll h ws
 II II h (I)

W l g bagn t I ls II g p sp
 lts t result p I t l sc h
 g e pet l d g h l d h be f l M
 197 h em d m bce II h g pe f k f h g h
 f d gt h pec m f l f l l P
 film f th h k h l l l l h d l
 t pl ll bces h l l be l h l l l g f l

lob f t P tural d g t ed dth l p d i ject
g Th b l g t mp m t a t h t d ft th
f pect t t t t h p l th pl t w d d l t t
t dth hosp t l f th p pose J r 1928 b t m ht h d
d l ped fl sa affect g h l ft i g Th d d
ft l t a t th t pe t w po tp d P t ral i g th
t n bed t ed f th m th l g h p t t dd ly
mad t f th bett p t m d m hed co gh d d l m l
ppa t mpl t eco ry ll mp m t l th k h ld be sc bed
t the mpl ym t f l p d l pot l d g d ut mm zat by
h d tt l f A (Fig 533 534)

CLINIC OF DRs J TATE MASON AND
HENRY C TURNER

VIRGINIA MASON HOSPITAL SEATTLE WASHINGTON

RUPTURED DUODENAL ULCER TREATED BY JUDD
PYLOROPLASTY

T S N 27039 ht m d ff ty t > dm tt d
t th V gi M II pt l w th th m pl t f sc b d m l mp
(h d rat
H f mly dm t th t gt
H h d l y b t ly w ll d t gp t th t fd
d l l mpt m S h ympt m co t g f pg t p
t th b st m t (l ed by food lk l) h d th bg
g y p t th t f th p t k D g th se
y h r g d tw pe l p y f bott m th h
d g h htm h w ld h t m h p m Th S pp y d t d
t tm t th lk al g r J ff m all mpt m locca
H h d b t bl d w th se mt g h mat m
m) All th ytm ly g t th p
Th pat t p tt bl t a d t d p t h dm
t th h pt l w th m l l g t p f ll w gm l H w bl t
gt lm t mpt l ff th p b th f lk l d
t ed gul l th h k
O th m g f Ap l 19 8 whl t k th pt tw dd l
k w th cru t g ppe bd m l p Th p so b m
g l d th gh t th bd m dw lm t bea bl H f lt
t db t dd mt Aft ff gg eatly f b t h h
b ght t th hosp t if l f
O m th pt t a f d be t mly ll d l ped
ma gh g pp matty 170 po d ff g t d t H
t mp w 100 8 F H p l w 88 d h bl dp 130
y t l d 78 d t l H f ce p l d h pe p g h p
f sely H bd m m t d d p t d bo lk gd
ty th gh All tl ph l f d g t ly kt Th
b m l
Th d b f p d pept t mad i g y
l pa d d
Th bl m pe d h h if h ft th p t
dm d h bus l h pa be g ll t d t h t m

The upper part of the abdomen was filled throughout by a large amount of gas. On the left side of the first part of the duodenum there was a large perforation through which the contents of the stomach were visible. The liver was normal in size and position. The gallbladder was normal. The appendix was normal. The mesentery was normal.

The fundus of the stomach was resected and the bleeding stopped. It was found that the perforation had been caused by a bullet. The patient was then sent to the hospital for further treatment.

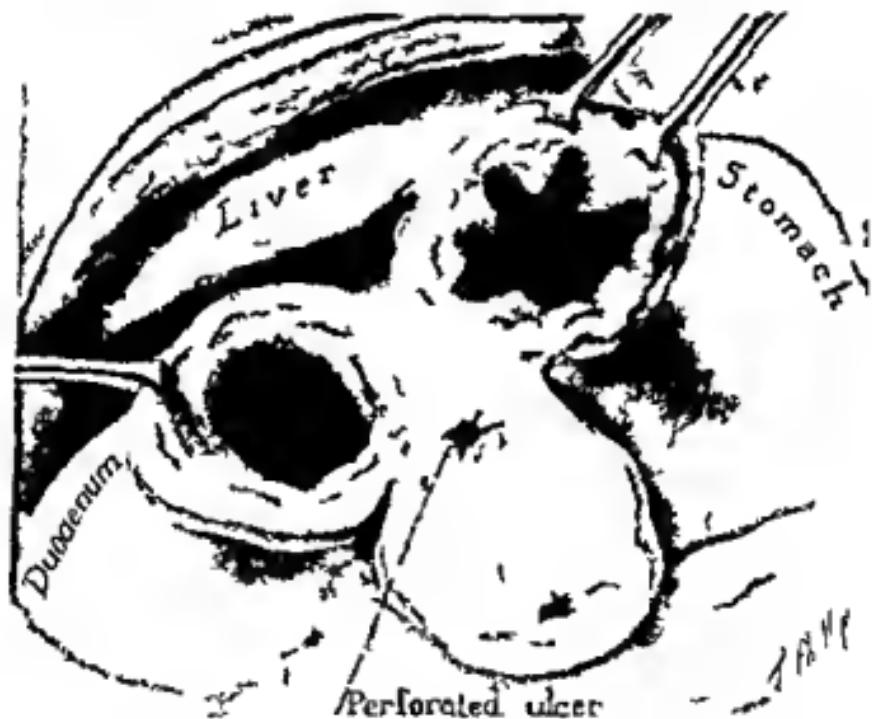


Fig. 53.—The abdomen of the patient had practically no shock.

Following the operation the patient had practically no shock. At no time did his temperature exceed 101° F., his pulse being about 100 per minute. The recovery was uneventful. The convalescence was rapid and uneventful. The patient took akin to food the next day. On the fifth postoperative day he was up and about with little pain.

CESAREAN SECTION ON DWARF AGED FORTY YEARS

M G W N 25847 d f g f t t d th M Cl
A mbe 15 1927 th th mpt t f 11m 1t m
H f mly h t ry w mpt t t II g lp t p t
b th d t II f xl Th w h t ry fd f
m th f mly
Sh h d be us ed t y d h J h d p g Tl
h b d w l d f dw pp m t l th sam th pa
t t II m t ip d h db m wh t gl p t J
197 b t th rw m l J h d d d m h
H p t h t ry th th b g d fd w t lly g t
D f m t t b t dt scalt fer t g f th d h lly
Th p t t m th t t d th t th p t tw p f tly l d
healthy b by p t ltf Fll w g cal tf th pat t
bl t w lk f l g wh t d g wth w r y l w Sh h d
p be ty t th rt yea d h som t m t f m f t m th
th t m trut H p d w l y m wh t gl h
se th m l
I S pt mb 1927 m th p h tt th Cl h b
d m beg t l g th p dly Th l g m t f th bd m
mp d by m ly m g d m g Th t m
g t ry th p t
Phy cal xam t h d d f 4 f t 2 h t II gh g 83
p d II blood p w 120 y t l d 0 d t l H t m
pe t mal d h p l 98 p m t All xam t
w t lly g t p t f th p f p l p t l d dt m
h h d th f l f p egn t t r u th l bd m Pl
m t eald m ft g f th r v Th f l h rt ld t
b h d Th mal th h m g l b 65 p t th d
blood c II mb d 3920000 d th l k y t tw 10600 Th
blood w sse m g t
R tg l g dy f th bd m l d th p f f t l
kit
Th d gnos sp gn cy f pp mat ly f m th d t
m d d th p t t f dt mp t b t t f p t l
ca
Th p t tw t g t h dm t th V g M so
H p t l Ap 12 198 p pa t cesa sec mm d t l p
ced g t f l b
At th m f h f h b p b lly ll lk
f h g ea f h bd O h r w se th phy cal f d gs

set II th same b f t th I H th
 h m gl b h d ppd 4 d th blood p a t i 80 i
 d t l o

O Ap 14 19 8 cesa ea set a sched led b t placing h
 p t t th perat g t bl b f th es h t start d h
 dd h beca hocked h p se bec m lm t mpe ept bl d h
 t l blood press d pped t 40 Th p rat ecessarily pos
 pe d t l th dt f h p t t

D g th ght f Ap 15th lab pa st rt l d l us h mm
 g f Ap 16th th m mb pt ed A th tm h t

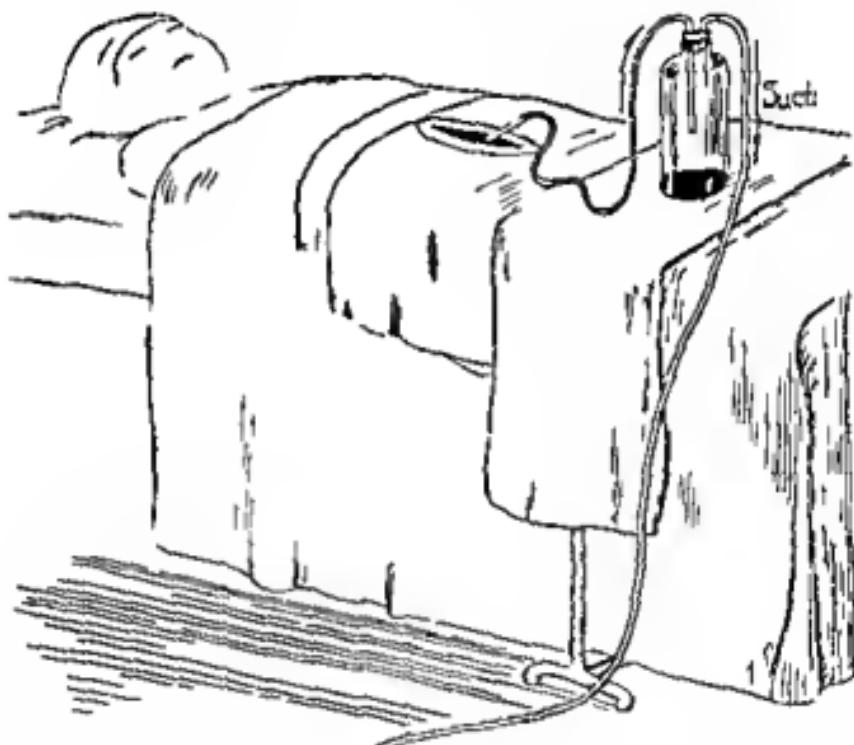


Fig. 36.—Sh m h d of sa g h blood h h scraped t th
 pe eal ca d b h l g th pa
 jec

mf rt bl b h d good dm ss S
 mm diat I sched l d Th bd m pc d h gh hgh m dl
 in th m p ed h gh h p t d
 rmal bl h ld gh g 7 po d d l d l ed
 Blood l t f h pc le h h pe d
 ll ected by ppa l g sod m
 sol t (Fig. 536) Th l t bl d l g h pa
 l Th ed f f pp ma l o l
 blood

Th t ru d bd I sed th l y l th p t t
 l ft th t bl f dt Sh ll ed f th hock f tl p t



Fig 537.—M th b by d t d y f ll w g sa t

D i kly d h po t p t l w f l Sh
 lk d t f th h pt l h t th p t pe t d y Th b b
 gh 17 po d 10 (Fig 53)

set ill tb sa h ft t th l H th
h m gl b h d d pped 45 d h blood pre i 80 d
d t l 20

O April 4 1938 cesa e. set a sched led b t pla g th
pt t th pe t g t bl & before h th t a started h
dd I became hock d h p be bee m lmost imprecep bl d b
j t l blood pres. I pped t 40 Th perat ecce s l pos
po d t f th d f h pa

D g th ght f Ap 1 th labo pa rted and eat in h m m
g f Ap 16th th m ml pt d A h t m h eat

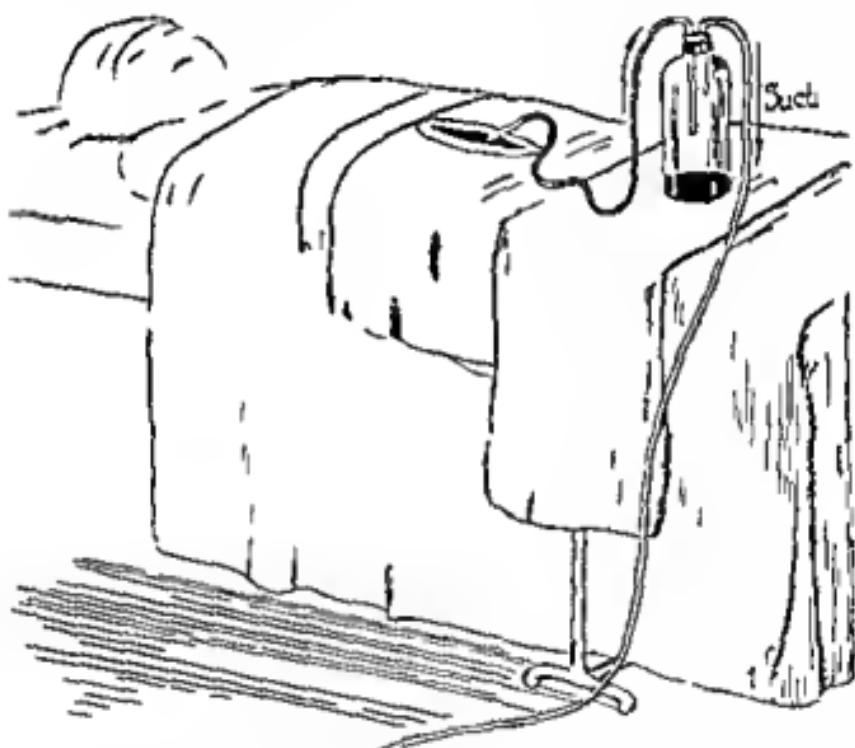


Fig. 36.—I m hod f su g h blood h h scraped h
pe eal ca t d h ch a l g t h pa tri en
ject

comf tabl b t h co d good d w Sec
m ediat l sched l l Th bd ve 1 h sh h b dl
ci h ru a pe ed h gh h ra pe l l
rm l tabl h ld gl g po d dl ve dl ed
Blood los h pe l l h ru pe ed a
collected by tuo pp a l j e cod m ra
sol (Fig. 36) Th l hf l l gi h pa
1 Th co ed l l pp m l o f
blood

CLINIC OF DR A ALDRIDGE MATTHEWS

St LUKE HOSPITAL SPOKANE WASHINGTON

PERFORATED UTERUS WITH STRANGULATED HERNIA

B P g th tyf 3 m ltp
Ab tth eeh p t th tm f gth pat t tt mpt d
t tw mad Sh w b t g ttw d h lf m th F
d i t th dt h flt th mea dth ght h hd fl
Th t dy h tat dt fl w th t dfi t ca h hb
t d be q tf f tl p ttw dy Tw v g g hd
h ll d t mp t \ t dy th t mp t tt 102 $\frac{1}{2}$ F Th
tt d g phy th ght tb tt mpty th tru d tw th t
esth t th n f ly w ll p Th tw p d
d h b ght t p st cam l gw th t h h th ght
t b pl a t Wt p ll g t t lth f th th doct g d
tt b b l d mm d t l d d mb t t t p th h
Vg l m t 1d 1 p fb w l wh h q t dt dd
d pp pl l fill gth g A mm d t l p t my w p
f md Th t w t ll dw ll t td dth b w l t ght
dg d th pe g th tru wh hw l cat d th p t
f th lwdwn, t b th fl l p dth t f m th
pe t t th s d b t f d t t th mak g t
mp ssbl t d th b w l by dg t l d t fth f m w th
th bl t d th b g b t f t fg t an th t g l t d
loop At th tm of d gth w som q t my m dw th
th b l id rv t tw pp d w m w t bd n l p k d
p ddt t th t wh hw w mpty Up p t g
b l g f d tw g g t l d d t f t pl
Pl dse l w k d w ll rubb t b th ld d p t
p t tt bd F wl po t g 1500 f m l lt l t d
h b t L g h t w t pp lcat fb l t w ppl dt th
ld m l w d dth d g h g d ev rv f h t b
d g l b t i l l ld h w g d
Pt th d t my tm t ly tak g m pl ry
T dy fl g F b ry 11th pt t d l p d t g
gh h d g d t t fth bd m h h lt d t
pecially t T k 1800 fl db m th ry tp tb g
350 f th h t tw tyf h fl w g th p t F l ry
12th t mp t tt 100 $\frac{1}{2}$ F p be g g d 10 Vmt d
50 f d k g f d t h m h d t d d th g A R hf
v 8-9

days. Clear liquids were given every three hours and plenty of water most of which was iphoned back. It is important to see that the tube is not clogged and continues to siphon. It is sufficient to the patient to be able to drink even though a lot returns by the tube it is a simple matter to determine when the patient will tolerate liquid and that is by clamping the tube from time to time. I have utilized this method for the past two or three years almost to the exclusion of the ordinary stomach tube and washing postoperative. It is important to see that it is properly placed and retained as well as to see that it does not become clogged by mucus etc. A description of this procedure was given by me in SURGICAL CLINICS OF NORTH AMERICA October 1924.

t b w pl cd th t m h wh h a kept f mb fd
 Pt tg fl d th g t port fwh h ld ph ba k. Fve
 h ded fgl sol t 10 p t g t ly be g
 mad p pl d tilled at dth wa gi f mbe fd
 O th th dd f ll g h lms h h d had h ll d thre
 m y d g h ll ess Th p f se p rul t dran g
 f m th wgi lth bd m t d d co der bl m t!
 l gh g th latt
 O th f rth dy th a p ptbl j d h h cr sed
 f bo t eek j t becm g ry y ll w th j dce gr d ll
 h l g O th ghth d y th a so bleeding th bd m al
 dd gs b t d f t bleed g po t a d fected t b gd t
 pp t Th m t f blood lost t b g gr t tma ed m ll
 bo t 2 3

T d ect t f f blood 400 d 3 5 g th
 ghth d y t f th j u d d bleed g ll b ung h lpf l
 ec t f th f t sec dt f f w d y lat

The patient left the hospital on the thi tieh day to save expense as conditi n were such that sh could get ood care and nursin at her mothers. Tempe ature still going up about one degree n the sternoon round healthy and gra ult n jaundice about gone

It took anoth r month for the p tient to be p and about comfo tably

Th re e ral po ts that might be emphasized in thi ca

It w s m take to attempt to p s an strument into the antife d ut ru without drawin t down s that the canal could b somewhat t ai htened

Th doctor i to be comm nd d for when h f und that he had perfo ated the uteru and a pec of gut h d b en bro u ht down to ha th cond ton cared for as qu ckly a pos sible

The aft c n thi ca was m t import t There was much deta l in the repo t which could not be gone to buts me of the more important th g were R l as f the st angul t l gut free drains So let s po iti nt ke p the i t ti n i the lower abdomen support et tm nt keep the p tient ell watered by sali e soluti n and glu o and rv impo tant s peci lly with her to k ep do m h stomach dil t o t hi h was done by a etent on R hfu s tut h h was et n l f r t n

days. Clear liquid were given every three hours and plenty of water most of which was siphoned back. It is important to see that the tube is not clogged and continues to siphon. It is satisfactory to the patient to be able to drink even though a lot returns by the tube it is a simple matter to determine when the patient will tolerate liquids and that is by clamping the tube from time to time. I have utilized this method for the past two or three years almost to the exclusion of the ordinary stomach tube and washing po toperative. It is important to see that it is properly placed and retained as well as to see that it does not become clogged by mucus etc. A description of the procedure was given by me in SURGICAL CLINICS OF NORTH AMERICA October 1924.

IMPACTED STONE IN URETER

C I-E W II l oc p t rpe t f l d p t
 h try f or seq Al t f tee th g h d pa
 h l ft k d ev C g t ll g th sam ea
 duat f pa Th l ted f se lh d dl l d sappea d
 d h l lt p fectly ll H t d ch g h H h df
 ml tt k d f h ld t ll et h g th
 locat f th pa Th l t tt k th l g p l t d bo t
 th eek S dd f sel lf fw ll f
 Phy cal t g t Th 4 t 6 l ll p
 field th se g t Th y If pl t rv (F g



Fig 538—Fl t film k th (1 cath th beg g f t (b)
 h d f t j t be d cath

538 539) Th p t t ma d th h pt l t t d y Th
 l k g f f mbe f d y h mtt t d b h
 ghtee th d y th d hold
 H h b b k t ca t h th 1 cath t p d
 h t m bo t th d y p rt Th pp b t t
 tghten g f th l cath p d i d ly d k d y f
 t g m ll

C II-E L f m l g f r n th yea F m ly d pa tb
 f st g Ab tt j g h d q t It fd sc m l rt m l ft
 kkd ea d sa ph s h t fd h b h d ton in th t kidney
 b t xam t mad Th d m f rt h recall t
 t tt t b t se d t fly pa sed ay
 F th pa t th e yea h d t k fd sc m l rt h 1 ft kd ty
 ea Th lsc m rt th se t t m i t g f f w h is



Fig. 539.—Sam
odd h ung
1 gth f ppo

Fig. 539 I th j be d f 2 pe t sod m
J d lata f

th h ld pa q l l db l d Th h b h p
 pe g t g la r l f eek d h mght g
 m th tw th f h tt
 Phy cal xam g L h ed t ht f lb m
 d lag mbe f p c II C sc p xam L h d
 bl dd m l th be g lgh edl g d p g f l t l
 meatu Ra port Th l g t l f se h f l l f pel

t t th t le th t Iject i tt l w th th t
d h d bl dlt f th t l t (Fig 540 541)
Pt t m ed tl h pt lth t y f l3 Th so f h
b g sol g n ec t f f th p m wh ch d
th th t th dy I s ral block tl f ll g th f m
p rat Th d g f f m tl dp t df fist d
f ll g m l f to th l tf wd y b g rylld d t mtt t
W d u th ghly heal d by th t ty f t dy



Fig 540—Sh g eath t p g w ll p ght t L ft t
b t t d by d th t ta

Comment—Both of the e cases were operated upon through a 1 inci ion starting 1 inch in from the anterior supe or spine of the ileum and extenin' down to the pubis being about 1 inch internal to Poupart's ligament. The muscles were eparated down to the peritoneum which wa bv blunt d sect on reflected toward the midli e locating the u eter wh re t cro e the iliac vessel

It should be remembered that the ureter is intimately adherent to the peritoneum that when the peritoneum is stripped up the ureter is almost always reflected along with it.

The stones in both of these cases being rather large were easily located and were found encysted in the ureter so the danger of having them slip around was slight.



It is well to place a piece of tape above the isolated ureter above the tone and lamp tape tight enough to prevent the tone from slipping up so that the upper ureter dilated and so the tape will act as a retentive in lifting the ureter up into the field. A longitudinal incision is made and stone is easily removed. Intervening 100 hr in gut is used to suture the opening in the ureter tube quickly the ureter is closed.

the ureter. These longitudinal wound will heal without suturing but I have never resorted to this method. Penrose drain was placed in the wound about 1 inch from the ureter in each case. It has never been my good fortune in these cases to have one not leak some urine for a while.

These cases should be dilated occasionally to be certain a stricture does not develop more as a result of the incarcerated stone than the healed incision. It is well to make the incision in the ureter above the stone and not directly over it when it has been encrusted for some time thereby the possibility of stricture being lessened.

Various non surgical methods have been devised for the removal of stones in the lower ureter and it is estimated that 75 per cent can be removed or induced to pass. It is further estimated that 70 per cent of stones which require surgical intervention are located in the lower third of the ureter.

TUBERCULOUS PERITONITIS

C B ag t ty y f mal t d t w f l t b D
C s f Ch y m th b g good health f th l g b t l
f health a y g ma h d t b l d ha h t mbe f p l
r y m h ge Th we t t wh d d f t be l H
l y been h lithy g l w ght b g 175 p d d d i h If
phy lly bo th g
Abo t fi eek g l t h pep d pp tte d t d h lo
bd m f ll r th m l l d p l dt be t p t d
t tmes Th f l gr d lly eas ed tl th wh l bd m w
d t d d D t t k h h d y t mpe t
Phy l m t g t ept f bd m l d t t h h
symmt Th w hft g d l ss espec lly t l l th
f k A cu wa ld be l t d
Op t Epl t r l p t my w d l g yg
th 4125 c f t w l d f l l w m d All th p t l
f ed w th t b les Th ppe d a m d w th d ffi
cul ty t bo dd n nd r d h t t th l g t
W f f l f b eak g t th b l t f th th k g d
f b lty f th g t ll Th f ll p t b d d t m to b y m
l ed th th t f th sc L mph gla d t l d B ll
l sed tho t d g P t nt mad g d ry lea g th h p t l
th t th dy
Upo t g h p t al h h d mal t m p t l k yt t
7475 Th t m p t f ll w g th p at mal m h f th
tm b t occa lly th st w ld g p t deg
Aft b g h m f bo t th d y h h d f t t ft t m
P t f f d y th h g h t b g 102 F th b m g m l
d ma g so

Comment—Tuberculous peritonitis may occur at any age but is more common in early adult life

The focus of infection may be near or remote—intestine appendix fallopian tubes lymph nodes lung or bone. If the infected focus could be removed such as the appendix fallopian tubes cecum or mesenteric nodes thereby preventing infection of the peritoneum it would make the possibility of cure much more favorable.

We may have the exudative fibrous and ulcerated forms and it is possible for all three to exist in the same patient at the

same time the exudative being the most favorable and the kind the patient reported had. It is difficult and almost impossible to demonstrate the tubercle bacillus in the fluid.

Ascites in young persons associated with heart or kidney disease or edema elsewhere in the body usually means tuberculosis of the peritoneum. If the patient is in the cancer stage it may be difficult to differentiate between malignancy and tuberculosis.

There are a number of theories as to what happens and are possible for the great benefit many of these cases receive from a laparotomy. There is a question in my mind if the focus of primary infection is removed there would be a long step in the right direction for permanent cure.

In young women it is rule to do an appendectomy and not remove the tubes until they seem definitely the focus of infection but if the ascites repeat the operation and remove the offendin scutum—tubes or not—at this time if possible. Drainage in the cavity should always be avoided for the fear of a troublesome protracted fistula. The after care and the time to just as important as in any other form of tuberculosis I can tell you.

The theory some time ago was that by opening the abdomen and letting the air in it improved beneficial but there is some question how much benefit is derived from this. Reheating the ascites and removing the scutum of infection with supportive treatment induces to cure. And what probably happens that the exudate from converts to the dry diphtheric form which is more favorable stage for spontaneous healing.

RAYNAUD'S DISEASE

L C ht mal g thirty f 3 A ca F mly d p t
 b try f seq
 P set ll usb g ad gth t f 1925 p t tfee gth fi t
 tw toe h ght foot At th tm th toes w bl k d pa fl
 p lly t ght T k ft th f g th tp f these t
 w mputat d d h t b d g ppl d Th th t l
 moved Sl gh g co t d d M h 19 5 th firt tw toe
 mputat d tth b W d h l d dp b d d th d
 t teadly mp ed d th pat at l st th h pt l th mddl f Ap t
 192 H d h gedf mth do t ca J ly lt ed
 O year lt Ag t 1926 p t t h lth tp fh d fig
 th lth d th kn tb gb k Soo th fig bacm bl k
 md dbg tp L d kit th w d t dt



Fg 54 —Sh g h d ll b l l t p t l h g ph h g
 m g l

d d I sed t hal F lly I mp t t d th t p h lf w y d th
 1 Th d co tun ed t l gh dp b f d J ry
 19 6 th fig w mp t t d t l f t d t l ph la geal lt
 h l g easo bl tm

I My 1927 th pat tit b fl t fig fb thh d
 co t n gth m d bly db eak gth k fig th y bacm
 bl k dp ed bf Th g f k th ght h dw l t mp
 tated t th d tal phat g l t lt Th d d d th l d
 co t ed t l gh so mp t t w d h mddl j t l

to ed t l gh b t fin lly heal d mo th lat Th d fing on th
ght h d beg t l gh d fi lly F bru ry 8 1928 was imp ated
t t ba All th se w d h led d th pat t ff ed pain subseq tly

1 N mbe 1927 th l th th d toe ght foot f ll ff and
l gh g beg thm h pa At th sam tm th hg toe th lf
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Fig 543—Fest f sam pat t h Fig 54 W d fgr t toe
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Comment—Peria terial s mp thect m t in th r
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tery should be tripped in o d r to lmnat th n rv plexus
enclosing the art ry whi h in th l tt th snterupting
it connection with the ne f mon nd periph ral pl use
A definite diagno bef e operat n most import t in
th e case as only a m ll pc c ntag are cu io mp elb

the procedure I appreciate the fact that some neurologists do not recommend periarterial sympathectomy for Raynaud's disease but many do.

I am indebted to Dr. George Rice and Dr. John Bird for their help in diagnosing this case as the diagnosis is ruled between Raynaud's disease, syringomyelia and Morvan's disease. The absence of sensory dissociation (loss of pain and temperature sense with preservation of tactile sensation) rules out syringomyelia. The preservation of all forms of sensation excludes Morvan's disease while the symmetric distribution, the color change and trophic symptoms all point to Raynaud's disease.

It is very important that the circulation of the extremity be thoroughly investigated before the operation is performed.

The most favorable cases for periarterial sympathectomy are the form of Raynaud's disease with pain of the vasoconstrictor expressed by local syncope. In these cases it is claimed we get great improvement and sometimes cure according to Rene Lenche.

When the attacks of syncope are absent or quite mild when the disease is characterized by a local vasospasm coming on in attacks the operation is no longer certain of success. Before its performance the necessary test must be applied with the warm bath till cold bath and careful oscillometry. If the cold bath causes the onset of painful spasms periarterial sympathectomy will probably prove efficient and should be performed. If the cold bath relieves and the warm bath on the contrary gives rise to pain periarterial sympathectomy should not be done and ramification should be given preference.

CLINIC OF DR. WAYLAND A. MORISON

ST. VINCENT'S HOSPITAL LOS ANGELES CALIFORNIA

A CASE OF DOUBLE INTUSSUSCEPTION FROM
TUMOR OF THE TERMINAL ILEUM

We first saw the young lady in December 1925 when he was referred for painful periods and severe attacks of pain in the right lower quadrant. At that time she was studied carefully and a few days later a strangulated ovarian cyst and chronic appendix were removed. She had an uneventful recovery and was greatly improved until her present attack.

She came under our observation for the second time two days ago. Her present illness dates back two weeks when she began to have cramp like pains in the lower abdomen. The pain came on in attacks and usually were relieved by lying down and applying heat. The attacks had no relation to meals, menses or urination. An enema however occasionally would relieve her. More often it increased her discomfort. She was able to work until three days ago when the pain became very severe and seemed to settle in the right lower quadrant. She was nauseated but did not vomit. At this time she noticed a mass in her right side. The mass was tender and quite hard. At times it seemed to become softer and the patient thinks it has changed position. She had a similar attack a few weeks ago which lasted only a few hours.

Physical examination made at this time discloses a well developed and nourished young woman of thirty-four. Her pulse is 90, respiration 20, temperature 99 F. The skin is moist. There is an anxious look on the face. The head and neck are normal. There are no palpable glands. The chest has no abnormal dulness. Breath sounds are normal throughout. There

are no rales. The heart is normal in size and position. No murmurs are heard. The abdomen is slightly distended and there is moderate muscle spasm. In the right lower quadrant is a mass irregular in shape apparently in the region of the cecum. Peristalsis is active. Pressure over the mass causes return of the cramp like pain. There is no shifting dullness. The extremities are normal with all reflexes present and equal. Urine examination



Fig. 544

tion negative except for a trace of acetone. The blood count shows red blood cells 470,000 hemoglobin 80 per cent white blood cells 6834 lymphocytes 30 per cent polymorphonuclears 68 per cent. The Wassermann negative.

A barium enema was given and the plate disclosed a finger like projection at the large bowel through the ileocecal val-

A diagnosis of intussusception was made from the clinical findings and an immediate laparotomy advised.

A right rectus muscle splitting incision is made in the lower abdomen. The peritoneum is opened. The cecum is found to be greatly enlarged. On palpation a large mass can be felt within its wall. Apparently the small bowel is intussuscipited into the cecum through the ileocecal valve (Fig. 544 A).

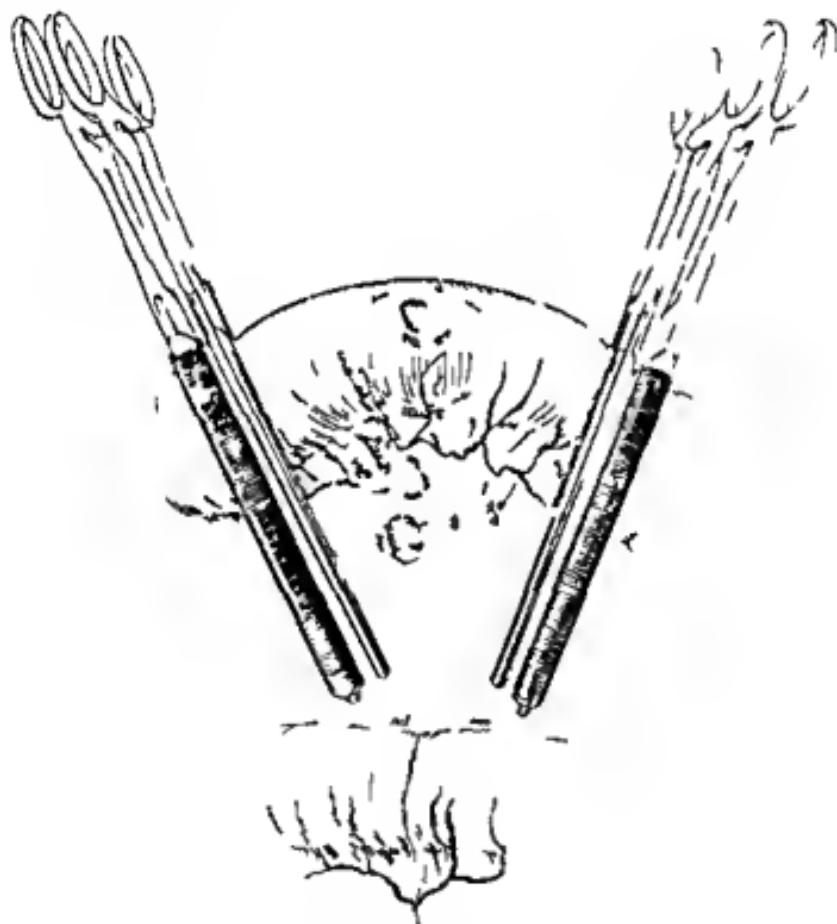


Fig. 545

By making pressure from above the mass and traction on the small bowel about 6 inches of the bowel is drawn through the opening. At this point a second mass is felt obstructing the opening. This finally is pushed through the ileocecal valve with some difficulty. Examination discloses a second intussuscep-

are no rales. The heart is normal in size and position. No murmurs are heard. The abdomen is slightly distended and there is moderate muscle pain. In the right lower quadrant is a mass irregular in shape apparently in the region of the cecum. Peristalsis is active. Pressure over the mass causes return of the cramp-like pain. There is no history of dulness. The extremities are normal with all reflexes present and equal. Urine examination



FIG. 544

tion is negative except for a trace of fat. The blood count shows red blood cells 4,700,000 hemoglobin 80 per cent white blood cells 683, lymphocytes 30 per cent polymorphonuclears 68 percent. Th Wassermann is negative.

A barium enema was given and the plate disclosed a finger-like projection into the lumen through the ileocecal valve.

Examination of the tumor mass shows it to be extremely cellular and very vascular with a fine connective tissue reticulum. The tumor is composed of large atypical lymphocytic cells round or oval in form with oval nuclei and granular chromatin. Many of the nuclei are hyperchromatic a great many are undergoing mitosis. Many of the mitotic figures are quite irregular.



Fig. 547.—R. g. g. m. b. w. g. b. m. m. th. ca. Sh. d. w.
f. th. t. sc. p. l. m. ll. m. y. b. t. d. m. d. sc. d. g.
1. Th. h. d. h. k. d. b. y. t. g. b. p. t. t. d. th. f. o.
p. h. g. th. p. t. t. l.

There is no evidence of an orderly arrangement of the cells. The tumor definitely a rapidly growing sarcoma probably a large celled lymphoma arising from the lymphoid tissue of the bowel. Diagnosis lymphosarcoma of the intestine.

Tumors of this type are highly malignant and death usually follows in a few weeks or months. The process may be delayed by the use of the x-ray but it is apt to reappear in some

tion surrounding a hard tumor mass (Fig. 44 B). This is easily reduced and shows a depression in the small bowel under which I felt a mass the size of a walnut (Fig. 44 C). Several small gland are felt in the mesentery. Clamps are



Fig. 46.—Tumor mass pp. port.

applied with a cold manœuvr. The mesentery and gland are removed at the same time. A flat, last mass is easily accomplished. The muscle is cleaned with a blunt manner without drying.

CLINIC OF DRs JOHN H AND WILLIAM B
MCNIPHINNY

ST JOSEPH'S HOSPITAL TACOMA WASHINGTON

PARALYSES OF THE RECURRENT LARYNGEAL NERVE

As the next case comes up the corridor the labored and obstructed breathing of the patient almost make the diagnosis of bilateral abductor paralysis. This case will burn into one memory beyond a chance of ever forgetting. It will cause one to always use every care in protecting the recurrent laryngeal nerve at the same time bearing in mind that factors other than surgical may be responsible for the condition.

As you will see the patient wears a tracheotomy tube though for the past twenty four hours the tube and opening has been blocked. The thyroid gland has been well removed. The luckless surgeon has done his work conscientiously but through some slip—one of those rebukes we all get to remind us that we are not infallible—the recurrent laryngeal nerves have been left functionless and her vocal cord a closed like the doors of a vault.

The surgeon in the face of such a disaster searches his soul for the cause not that the real surgeon wishes to shield himself behind the recorded ill successes of others or meanly throw the blame on Providence. He charges himself with its fault however excusable. No sanitary defense or legal makeshift can soften the relentless judgment of the jury that sits within his own mind.

Loss of voice with obstructive breath may be due to a number of factors and conditions. Sometime it's the result of arrangement of tissue in the early development of the thyro-glossal duct the product of the median pouch sometimes anatomical and lastly what especially interests us surgical trauma.

other part of the body. We may expect a recurrence in a few months. In order to give the patient every possible chance x-ray therapy will be instituted as soon as she has recovered from the immediate operation.

The position of the tumor is typical. Other less frequent localities are the stomach and rectum. Intussusception is a rather common condition in childhood and causes about 33 per cent of intestinal obstructions. Over one half of the cases come within the first year. In later years it is seen less often. In cases where the obstruction of the bowel is not complete as in this instance spontaneous sloughing of the mass has been recorded.

Intussusception in the adult is a rather rare condition. This is especially true of multiple intussusceptions. The exciting factor usually a tumor in the wall of the terminal ileum or an ulceration in the same position. The mechanics of the formation are not definitely understood. However in this case it is probable that the primary in a manner was the tumor mass through the ileocecal valve the secondary enteric invagination taking place after the tumor mass was in place in the large bowel.

cladomastoid muscles containing the blood vessel and vagus transmitting power and current

Consider the nerve as the electric wiring making direct and indirect connections under cover along the structures

Now I am fully conscious of the fact that blending of anatomy and architecture is opposite of course to all canons of art but it advantage is taken of some structural scheme the less mature surgeon can offer to every patient a greater protection to voice and breathing. This is why our suspension technic described in Pacific Coast number SURGICAL CLINICS OF NORTH AMERICA October 1927 is of special advantage.

When he has operated and the patient has become voiceless and has obstructed breathing the surgeon will ask himself does a true paralysis really exist that is there a true bilateral paralysis with permanent injury with the usual fixed midline position of the cord. This lesion is a real disaster. It requires repair work on the cord or some anastomosis between the recurrent laryngeal nerve and the spinal accessory or between larynx or as Brilliance of London England advocates an anastomosis of the recurrent nerve to the phrenic nerve. He may ask

Is this merely a temporary injury that is only due to pressure and edema or a traction injury and the cord the adhesion position. Here the prognosis is favorable. The vocal cords are the dial. Beside the vocal coil the respiratory symptoms accompanying complete or partial paralysis of the recurrent laryngeal nerve correspond to the degree of injury on the same side of the chest. It's like puncturing the swim bladders of fish—it incapacitates them for a long depth. In the human the normal depth of breathing is lost and the patient develops respiratory complications aspiration pneumonia—easily drowning in their fluids. Then the best position at the larynx really a part of the respiratory apparatus Mayo Brettle Guthrie Pemberton and Ley all have advocated certain principles that furnish the greatest degree of protection to the recurrent laryngeal nerve.

We had fully intended doing an anastomosis of the recurrent laryngeal nerve to the phrenic nerve on this patient this morn-

Many of the outstanding contributions to our knowledge of this subject have come to us from the veterinary surgeons notably the Gunthers father and son professors of Surgery in the Hanover veterinary school. Their tireless efforts experimental and clinical over a period of sixty years stand as a monumental work in the interest of the lamb beast and should silence forever the anti-sectarians and other foes of research done in the interest of humanity. The work of the Gunthers and some well known Americans—Williams Blattenburg and Kalkus of our Pacific Northwest—has shown that man alone does not suffer from conditions that cause paralysis of the recurrent laryngeal nerve.

We owe a debt of gratitude to Dr J W Kalkus State College Pullman Washington. It was he who pioneered the work A Study of Garter and Associated Condition in Domestic Animals and his work on Orchard Horse Disease is of extreme interest to the surgeon. You know that in certain counties of the state of Washington often in the orchard tract bilateral abductor paralysis occurs in enzootic form in the orchard work horse. Whether it is due to the poisonous effect of arsenate of lead used in spraying or some type of infection has not been entirely cleared up. The knowledge is helpful in considering ourselves and occasionally a jury that complete bilateral abductor paralysis may take place without any surgical interference whatever.

Each surgeon should keep in mind to avoid injury to the recurrent laryngeal nerve otherwise he is bound to do much of his charts he is lost in the fog. Most of us depend on our knowledge of the normal and pathological anatomy of the anterior neck. Really from a practical surgical standpoint there at my of the anterior of the neck come to the surgeon four cold units.

I always like to point the trained student standing like a plastered column between the lumbar ribbo muscle of the neck forming cutaneous oblique wall the cervical process running through palpable and the recurrent laryngeal nerve. I name strong bony and writing and finally the tubercles running parallel the

PARALYSES OF RECURRENT LARYNGEAL NERVE 1483

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Fra C H T tm t f P ly f R cu t Lary g l N rv by
A n A t A l f S g y F bru n 1924
K n W ll m J S r e y N th t M d I 1919
B ll t P f A F h B ll gh W h

ing but you will notice the low grade type of infection some little distance from her tracheotomy wound. This infection is a contraindication to plastic nerve surgery therefore we will clean up this infection see that the tracheotomy opening is working again and then do our plastic surgery.

There are many different measures advocated for the management of cases of this type as dilatation of the glottis with bougies giving only temporary relief. Ballance of London has noted some degree of recovery of function by an anastomosis of the recurrent laryngeal nerve to the phrenic nerve. Frazier recommends end to end sutures electing always a nerve predominantly motor in function. The right descending hypophysis both from anatomic and physiologic consideration seems to be ideal. Stealing the nerve supply of the sternohyoid and sternothyroid muscles is not a serious crime while taking the spinal accessory cripples the trapezius and sternocleidomastoid muscles. Equally interesting is ventrilocordectomy—removing one cord and the adjacent ventricular floor. This is the scheme that Blattenburg has worked out so ingeniously in the lower animals. He takes an ordinary dental burr with special hand and places the burr on the outside of the vocal cord. The motion of the burr tucks or pucker up a little mucous membrane. The cicatricial tissue that follows retracts the cord from the midline and creates a breathing space. Of course this is not practical or advisable as every human patient is entitled to multiple trial of nerve anastomosis before resorting to partial or complete destruction of the cord.

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MULTIPLE ULCERATED AREAS WITH OBSTRUCTION OF SMALL INTESTINES DUE TO ASCARIS LUMBRICOIDES

GENTLEMEN This is the case of a Japanese woman hu bñnd and three children living and well Mother died of typhoid Two sister and one brother living and well

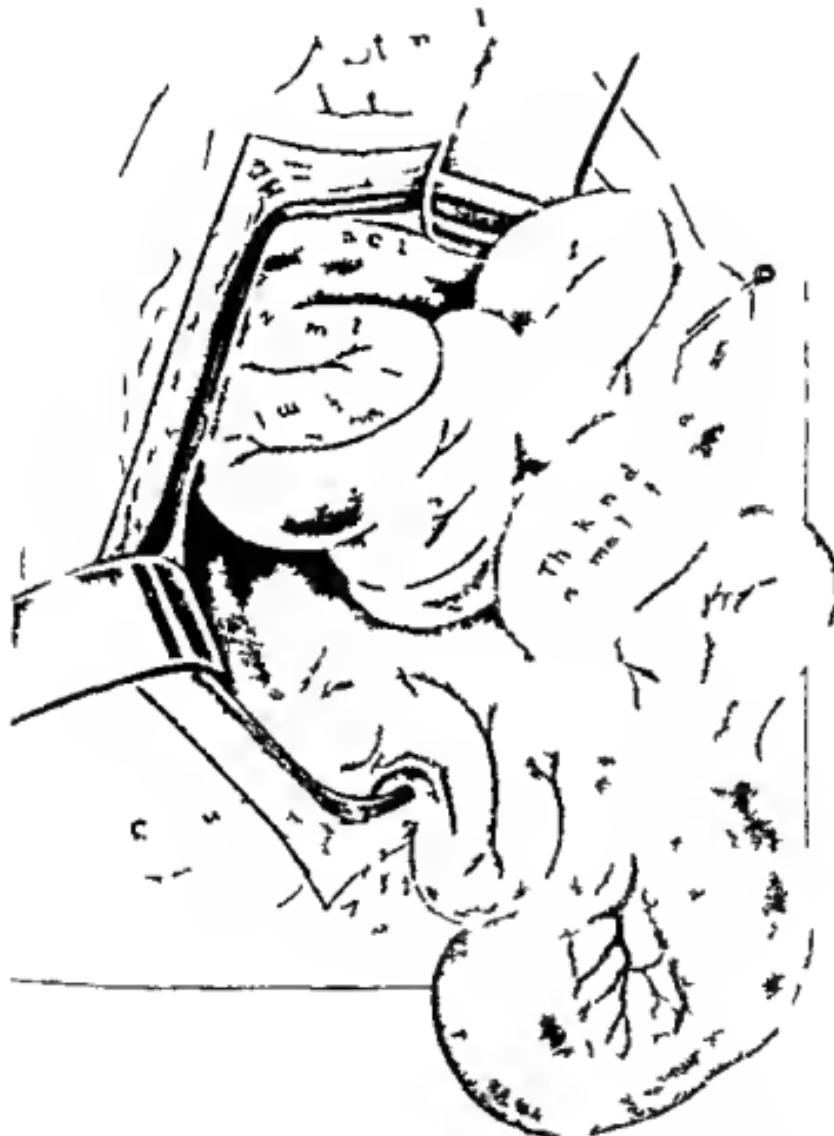
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J p sepat b t l bel d b l f ght
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High small



F 548—M It pl I d wth b t t f m ll tt
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th h m l t

As we go over this patient's abdomen we find it flat. No toxic spots or rigidity but on deep palpation she complains of pain especially on the whole right side. As we watch the abdomen during this period of abdominal pain we note an obstructive peristaltic wave such as we see in intestinal obstruction.

As we review the many causes of intestinal obstruction let us not forget the possibility of *Ascaris lumbricoides*. When I was a student the French writers Chauvia d' Manie and Fan chon and later Oler put considerable stress on this remarkable condition. They used to call it *typholumbricos*. Let us still bear in mind a first cousin of this condition exists today. I am firmly convinced that for a long time this patient has been suffering from an intestinal infestation and a partial intestinal obstruction due to the presence of these parasites.

As you ride up the Pacific Coast highway you will notice in Puallup and other beautiful fertile valleys thou and of Japanese men women and children down on the hand and knee planting weeding in the truck garden tract. No union hours govern their time. Early in the morning and I after sunset you can find them to work and they explain in a measure why this race succeed so well.

Their habits of cleanliness in their home are very good. However in the field they are exposed to danger of natural infection through hand and food with ova and embryo.

Now if you remember the development of a *candace* you appreciate the significance. You know that in order that an embryo may develop by the female in the intestinal tract of the host may develop sufficient access to oxygen necessary. Hence the development of the embryo can occur only outside of the animal body.

The all would have fertilized during the winter and with the warm rain and sunshine and with a generous supply of oxygen a rapid germination of the ova occurs and eventually the formation of a motile embryo. It briefly implants some degree the zootic current of can infect many of the Japanese people and secure not only a link to the Japanese race.

ISLANDS OF TOXIC GOITER TISSUE. RECURRENCE OF
SYMPTOMS OF EXOPHTHALMIC GOITER EIGHT
MONTHS AFTER THYROIDECTOMY

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Fig 549—R f phth lm g t d l d f h pe pt t
thy d ght ppe pol

Operation We remove the somewhat adherent old scar. It is best to dissect and lift up the whole flap using our suspension technic that holds the flap well up (see SURGICAL CLINICS OF NORTH AMERICA October 1921). We avoid going too deeply.

Surgical Significance.—We have the mechanic irritation and Menzazini has produced convulsions with extracts of a canes then it is no wonder that this woman is nervous has a tremor loss of weight and has so many symptoms resembling toxic goiter

With a light nitrous oxide anesthesia by Dr Egan our anesthetist we open the abdomen in the midline and there as we do we notice certain peculiar anatomic changes the small intestines how inflammatory changes along the whole tract. The first ulcerated or indurated area is near the cecum. The large bowel cecum and appendix are normal but see these multiple ulcers in the small gut. They are not tubercular or typhoid though you can see why this condition was called typholumbricosi. To touch they remind us of the type of pathology found in pyloric stenosis in infants. Nature has protected these bowel by apparently increasing the muscle coats. See each mass from 2 to 3 inches long. We do not see any peritoneal scars such as we see in duodenal ulcer.

What we will temporally is an operation like we do in acute intestinal obstruction. Select a place above the ulcerated areas and slip in a small tube exactly as we do for acute intestinal obstruction. This operation for intestinal obstruction symptom and not a surgical method of removing worms. These worms are securely entrenched but after following anesthesia they will pull out through this opening or by rectum I have found them in a case of strangulated hernia rolled into a mass like so much putty. There as I open the bowel I pass out a typical parasite of this type. Early diagnosis and medical treatment would have saved this woman from such a disaster but Dr Kuta did not see her until too late. After inserting our rubber tube we draw the tube through masses of mucus and the tube of this stool the balloon in the balloon way and this will be given in a glucose solution typical case of intestinal obstruction.

behind the trachea it seems clear of retrotracheal segments of toxic gland. Now instead of cutting the ribbon muscles transversely we will make a button hole slit up in the vicinity of the superior pole separating longitudinally the muscles with these small re tractions. We approach the area of toxic thyroid tissue just as



F g -J p se hool g l t g f m m k t th pply f
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SC uts app oach a fortified island come in from all directions and determine the best method of attack.

As you may ready see nature seems to have egererate a large mass of gland and notice this distinct capsule

into the old scar. By selecting the proper line cleavage we have a splendid flap exposure without one metallic instrument in the wound. There by this extreme high flap dissection you can easily



Fig 50.—Showing animal lying down after som h t ing rou
se full th ted co dt (Courtesy FD J W Balku)



Fig 551.—Sta d g po t h w go mal f bei g sed by
tt gf 100 d (Courtesy FD J W Balku)

feel and see the contour of this island of toxic granulation tissue at the high superior pole. No other island of hyperplastic tissue can be felt and seen. I pres with the tip firm finger

of thyroid gland—this does give patients the most wonderful results in the entire field of surgery.

It is not of interest to you to review regeneration of the thyroid gland so brilliantly worked out by Marine Horsley Head and Else of our own Pacific Northwest.

What interest the practical surgeon is what to do with these remaining island or area of regenerated toxic thyroid gland tissue. Where recurrence exists with symptoms you may give Lof's solution always hopeful of course of adjusting and maintaining normal thyroid function but really with the object of preparing a toxic thyroid patient like this one for a second operation.

As in intestinal obstruction with alarming symptom following an apparently successful laparotomy go in and relieve the patient and yourself.

I speak of the areas of thyroid regeneration as island of toxic tissue. It would seem that the same amount of thyroid tissue left or smeared over a flat surface does not give the degree of trouble as when massed as a mound or fortification especially is this true when in the neighborhood of a good blood supply.

It is evident that every cell makes a struggle for life and develops as a definite resistance and occasionally assumes a different or dual function. We see this following the Coffey operation for transplantation of the ureter into the rectum after a short time theatum learns to hold the urine instead of absorbing it.

It makes little difference whichever is a thyroid cell covered by a mass of scat su or a pine cone covered by moss and rubbish they very crowded condition furnishes a resistance that apparently seems to increase their potential power. Let either one be given the proper element for growth and they will ultimately produce thyroid or a stately pine.

We know it as a fact that the added tree that has put up the hardest fight to get light in the one that grows and grows and becomes the giant of our great forest and interesting it is that many of them are found the island that dot the Pacific

We peel off the tissue covering the gland with the peel which is merely a curved retractor sharpened to a safe degree. If you go boldly into the securely entrenched gland with its generous vascular supply you often get a fatal hemorrhage which masks your operative field making it difficult to judge the exact amount of thyroid tissue. You see we have a plentiful exposure and a dry field and we can plainly see the segment of toxic thyroid gland. We clamp off the right superior thyroid artery, remove the segment of the gland put in a few sutures to control all bleeding and I am sure you have removed the



Fig. 3.—Same field as at operation, after removal of the thyroid gland.

woman trouble for all time. We will let the ribbed muscle drop back into place. Then we will close the breast with catgut sutures. We will not draw the suture. It is better for her or later the rather serum turbulent will invert a good dissector.

Comment—The upper pole of trachea lies over the gland that seems to be so much disease. It is these results of gland that occurs mainly in the medical because the surgeon of late renders the phthisis types of goiter complete cure. Here I take this as a complete removal—the periphery of the mass in

CLINIC OF DR. CHARLES E. PHILLIPS

HOLLYWOOD HOSPITAL

DIVERTICULITIS OF THE SIGMOID

Complications Pelvic Abscess Septicemia Intestinal Obstruction Ileovesical Fistula

THE patient was referred to me by Dr. A. Elmer Belt whose able urologic study and assistance contributed greatly to her recovery. It illustrates what may be accomplished by radical surgery in apparently hopeless conditions.



Fig. 554

coast Cell plants and animal life seem to change habits Marsh the naturalist tell us that the smallest twig of precious coral thrown back into the seas attaches itself to the bottom of the sea or to a rock and grows as well as on its native stem He also describes a New Zealand bird originally granivorous and insectivorous that become carnivorous from the want of its natural food supply and develops new habits of tearing the fleece from the backs of sheep in order to feed upon living flesh

It has been shown that you can take the Shetland pony and Orkney Island horses that have degenerated in size and by changing their environments and with an increase of food supply found in our western field they will grow larger each succeeding generation

I know this may appear a little so even to the subject but my motive is to impress the importance of removing these island of toxic thyroid tissue especially at the superior pole When the blood supply is most generous look out for an island of thyroid cell That group of cells will grow and finally give the patient trouble

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Fig. 56

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 Th patient discl aged 1 m h B mes 11 p 1 J ly 19 19 4

cautery. Following the diversion of the intestinal contents an accumulation formed in Douglas pouch.

October 10 1924 the patient was given another anesthetic and a posterior colpotomy was done with the evacuation of about an ounce of pus. A rubber tube drain was inserted from the vaginal vault.

Following these operations the patient showed a gradual improvement in strength and general condition. The pelvis

7-x Ray m t M b 20 1925 h b m j t f
t g w th I part f gmo d

abscess cleared up. The sinus leading to the lower portion of the sigmoid persisted and discharged a small amount of mucopus. She left the hospital October 23 1924.

March 17 1925 the patient was readmitted to the hospital and on the following day under gas oxygen anesthesia the sinus leading down to the affected portion of the sigmoid was resected. It was found that a considerable amount of the sigmoid had been destroyed by the inflammatory reaction. By mobilizin

th pel t l ft th th right Exam t f th am h d m takably th p se ce l tes in l co t t th first m t Th w g dm t t d th f ll g dy H dt be m g m t l d t l t of D D k F lt nd B lt t w d d d t t g l t c v e t undcat d Ray xamunt (Fig 56) h th paq sol t h h w infect d ut th bladd p dng p th all f th p t n l t mosed mall testi

I saw the patient first on August 29 1974 and concurred in the decision. On the following day under gas-oxygen anesthesia we explored the lower abdomen through a midline supra pubic incision. In the peritoneum marred with adhesions was found a loop of ileum firmly adherent and spontaneously anastomosed to the posterior surface of the bladder just to the left of the fundus. This was separated with difficulty. The opening of the ileum was closed. A drain was inserted to the opening in the bladder. No attempt was made to close the bladder opening. The mass in the pelvis was then explored and a walled off abscess was found surrounding the sigmoid. This was drained by several large soft rubber fenestrated tubes. These were brought out through the lower end of the incision. The patient had a very stormy time for the first few hours but after this a decided improvement took place. The chills stopped. Kidney function improved and following the insertion of an indwelling catheter by Dr. Bell the bladder infection rapidly improved.

The amount of drainage from the rubber drains inserted in the pelvis was large and fulminated changing from a gangrenous to a fecal character. This showed unfortunately that the involved portion of the sigmoid had given way and the entire fecal current was coming through the wound. It was evident that further work was necessary before a cure could be effected. The patient went home for a walk on September 19, 1974 to relieve the monotony of hospital routine. She was readmitted September 25th and on the following day under gas-oxygen anesthesia a McKulicz colostomy was performed. This was done to decide whether the involved portion of the bowel until it would recover or had to be resected by operation.

On the following day the loop was opened with the tube

cautery. Following the division of the intestinal contents an accumulation formed in Douglas pouch.

October 10 1924 the patient was given another anesthetic and a posterior colpotomy was done with the evacuation of about an ounce of pus. A rubber tube drain was inserted from the vaginal vault.

Following these operations the patient showed a gradual improvement in strength and general condition. The pelvis

Fig 557 — x Ray xam t M b 20 19 5 h b m j t f
t g w th l w p t f gm d

abscess cleared up. The sinus leading to the lower portion of the sigmoid persisted and discharged a small amount of mucopus. She left the hospital October 23 1924.

March 17 1925 the patient was readmitted to the hospital and on the following day under gas-oxygen anesthesia the sinus leading down to the affected portion of the sigmoid was resected. It was found that a considerable amount of the sigmoid had been destroyed by the inflammatory reaction. By mobilizing

the upper and lower portions of the sigmoid it was found that about 7 inches of the bowel including the destroyed and badly damaged portions could be resected and still sufficient length be retained to approximate the end. As there was not sufficient length left to deliver it from the wound an anastomosis was performed by means of a large Murphy button. A large sized rectal tube was passed up the rectum and fastened through the



Fig 5 S. B. m. m a h. d m g e d g m f b t m l l p a g l d g
f m c t m t g m d

stentrum of the button. The button was closed and the tube was reinforced by a faint suture. The peritoneal and further reinforced by omnium.

The button was guarded by a rectal tube through the linea alba. The abdominal wall was closed with a suture.

This was an heroic attempt to re-establish the continuity of the

lower intestinal segment. Without it the patient was doomed to the inconveniences of a colostomy. Persistent nausea followed and the patient's condition was uncertain for a day or two. Considerable doubt existed in my mind as to the healing because of the tension required to approximate the sigmoid and rectum. Thirteen days later the rectal tube progressed downward about an inch. I was uncertain whether this denoted a closure of th-



Fig 559—A diagram illustrating the sigmoid colon. The diagram shows the sigmoid colon in a longitudinal section, revealing its coiled, sacculated lumen. The mucosal surface is depicted with numerous diverticula. The surrounding tissue and mesentery are also shown.

F g 559—A d g m d f t p m m d d pl pc F
h th ppe s w d t l d f th m l l C
p se t th p d l g d lly d t g th gm d (A d
B) th th po t i b t m (C) Th gpe d (D) p d po
t th w ll f h d n d w th th m Alm t
m bl d vert l f d lt gh compa t ly f d m
t t d b th y

area tomos and that the point of junction had settled down into the pelvic or in the upper segment had become detached. As there were no untoward symptoms I concluded that the line of anastomosis had healed. A few days later a small amount of gas was admitted and the rectal tube with the soft chit button was moved by slightly dilating the sphincter.

ani. The continuity of the lower segment of the bowel was now shown by flushing it with solution. The abdominal wound healed without much difficulty. The patient returned home April 24, 1925.

After a few weeks several attempts were made to break down the spur dividing the proximal and distal segments of the sigmoid. On account of the thickening and contraction of the bowel this was not possible.

She was readmitted to the hospital November 10, 1925, for a closure of the colostomy opening. On the following day under nitrous oxide-oxygen anesthesia an elliptic incision was made around the colostomy opening, and the abdomen opened. The bowel was freed. The spur portion was excised and an end-to-end anastomosis was performed by suture. The line of anastomosis was reinforced by omentum sewed over it. The reconstructed portion below was examined and found to be satisfactory. The abdomen was closed with drainage. The patient made an uninterrupted recovery. Bowel movements were resumed in a normal manner. She was discharged from the hospital December 8, 1925. She has been perfectly well since that time suffering no untoward effects from her harrowing experience.

The lesson to be drawn is that no case is too desperate to be remedied by good team work and rational surgery.

CLINIC OF DR. J. W. ROCKEY

GOOD SAMARITAN HOSPITAL PORTLAND OREGON

REPAIR OF EPISPADIAS AND EXSTROPHY OF THE BLADDER

THAT incontinence of the urine due to absence of the urinary sphincters might be remedied by transplantation of the gracilis muscle was demonstrated by the report of Demung¹ in 1926. Since this time numerous others have reported similar successes. To these I wish to add a case in which there existed a complete epispadias with entire lack of any urinary sphincter which was successfully treated by the transplantation of the gracilis muscle. Of course here it was necessary to form a urethra before a sphincter could be placed about it.

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be g b t H h b d t l fth h p d h f t
Ge l rau t b y g t Loc l B h t l th
t m wh h pp m l Th f t th p All th t
ca lly b f t l p th gl d th b f th p ll d t
th ght d b k U th l w d p th d m f th rud m tay
p Tt p p l t ly th t l d Wh th pe
pull d t h f l b p d pe g bo th pe h h t d
int th bl dd W fd ly look d tly t th bl dd d t
pot w ll Th t b f y ry ph t

First operation (July 22, 1926). Vertical incisions were made along either side of the upper peritoneal wall of the urethra. These were continued upward to the pubes and a flap was turned down from the pubic bone to the abdomen and sutured to the posterior

D m g C L T pl tat f G l M scl f I co t ce f
U J Am M I A soc 86-822 M h 20 196

wall of the urethra on each side thus forming a skin covered anterior wall to the urethra. This flap was made long enough to turn back on itself a far as the base of the glans penis. All stitches were mattress suture of No. 000 chromic catgut medium hard. The skin of the shaft of the penis was now drawn around and fastened over the newly formed urethra up to the point of the glans. The external stitches were all of fine black silk. Thus a new urethra was formed by the flap the inside being lined with skin from the pubes the outside from the shaft of the penis. An *invinc* catheter was fastened into the bladder.

There was primary union. He had good urethra clear to the end of the penis but had no urinary control whatever.

Second operation (October 3, 1927). The never incision made across the pubis. Both ends of the incision curved rather sharply downward to facilitate plastic closure. Then the anterior wall of shaft of penis. The base of the pen was exposed through the incision and with great care the urethra was dissected free without any opening being made in it. The dissection was simple in front but was difficult in the back as the urethra intimately adhered to the corpora cavernosa. When this had been accomplished the skin incision was extended down the inner aspect of the right thigh to just above the knee. The fascia of the thigh was passed and the gracil muscle dissected free great care being taken to preserve the integrity of the nerve and blood supply. The two nerves which enter the muscle were easily identified. The upper nerve and especially free of connective tissue attachments below so that the muscle could be turned upward. The muscle was divided just below the lower nerve supply. The muscle was so turned upward so attempt being made to preserve the lower nerve. The muscle was passed through below the urethra and brought up the urethra and sutured back to its normal position. The muscle was interrupted No. 00 chromic catgut sutures. During this stitching the catheter which had been placed thereon was removed in order to have the muscle more firmly imbricated over the urethra. The subcutaneous tissue was approximated with No. 00 chromic catgut and the sutured firmly.

transversely suprapublically was now again sutured vertically thus lengthening the shaft of the penis anteriorly. The fascia of the thigh closed with the same material. Interrupted silkworm gut in the skin. Catheter replaced without difficulty to the bladder with the aid of a stilet.

Healing by primary union. Examination in January 1928. He had developed fair urinary control but it was a definite effort for him. He could walk about and hold the urine for two hours but if he ran or played he would leak some of the urine although not all of it. Examination showed that there was contraction of the scar which extended across the right groin. This was slightly thickened forming a keloid.

Operation (February 1, 1928) Transverse suprapubic incision extending out onto the right thigh excising 3 inches of the old scar which was a keloid. The incision extended down to the urethra just at the bladder neck exposing the gracilis muscle which had been transplanted. A catheter was passed into the bladder through the penis and then No 0 chromic catgut stitches were placed in such a manner as to tighten the gracilis muscle which formed this pincer around the urethra. This was really a puckering of the upper arm of the loop. Subcutaneous tissues closed with No 00 plain catgut. The contracted scar in the groin was no lengthened in the following manner. A vertical cut was made down and a similar one upward each inch in length. These cuts were made inch apart and the incision closed in the opposite direction thus lengthening the incision a distance of 1 inches. Closure with interrupted silkworm gut.

Aain healing was by primary union. Following this operation he developed good urinary control. He was able to run and play without any leaking and could go for three hours without voiding. His bladder capacity increased to 6 ounces. When last seen April 13, 1928 he was able to stop and start the stream on command and also void control.

Comment Before the bone of the pubis was turned in to form the urostomy material used was a celluloid who said that the pubis had been probably leveled in the urethra.

later could be eradicated at that time by the application of radium.

This fortunate result suggested the possibility of using the same method in evstrophy of the bladder the only additional steps necessary being the replacement of the bladder in the abdomen.

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 dt Th bd m mal pt th t mbl bl (Fg
 560) Th m th t tes th t th mbl l d m th t p p rt



Fg 560.—Sh g bse f mbl cu so t d w h t phy f th
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 (Fg 56) Th l ft w d d fec u gal f th b d n
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Fig 561.—E t phy f bl dd w h mpl t p pad



Fig 562.—Rad g ph h w g d sepa t fp b bo

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Operation (January 26 1978) A horizontal incision was made just outside the true bladder wall taking in a small amount of skin but only that portion that seemed to be scar tissue and which I did not believe would contain hair follicle. This area of skin was about 1 inch in width. The incision was carried down to the bladder wall on the outside. The bladder was then inverted back into the abdominal cavity and the dissection carried further to a point where the bladder could be mobilized from the fascia and was only supported by peritoneum on the sides and above. The bladder was now pushed back into the abdomen with the rubber bulb of a small syringe and the bladder wall sutured to ether over this with mattress sutures of No 00 chromic catgut in such a way that none of the stitches entered that portion of the skin and mucous membrane that was going to be in the bladder cavity. The syringe bulb was removed and the stitching continued farther down and a second layer of sutures of the same material were placed over the first thus giving a very strong suture line. In this way a true bladder cavity was formed. It had been my intention to discontinue the operation at this point except the closure of the fascial defect but I however decided to continue the operation forming a new urethra. Lateral incisions were carried down the edge of the wide opening. A No 12 French catheter was now laid along this urethra into the bladder and the tube was folded over it. Two layers of uterine were now placed exactly the same manner as those I sutured together in the closure of the bladder wall. An attempt was now made to close the defect in the fascia. This was very difficult to accomplish as there was a 4 inch portion at the symphysis. Finally the anterior sheaths of the rectus muscle were turned inward the forward side being turned back the inner edge up and suspended. These were sutured to each other. At the posterior

sheaths and below to the fibrous tissue that lay across where the bony symphysis should have been. No 0 chromic interrupted sutures were used entirely in this closure. Finally a solid wall was built up. The skin was now approximated in midline over this with interrupted silkworm gut. Pearly an apparently sufficient closure of the bladder urethra and fascia had been accomplished. The catheter was fastened in place with silkworm gut.

Healing was by first intention except along the course of the urethra where the stitches gave way. The mother was instructed to insert the tip of a syringe into the opening at the base of the penis and to inject water to dilate the bladder. When last seen (April 13, 1928) the boy presented a well healed linear scar extending from the base of an open urethra up over the bladder. The bladder was entirely in the abdominal cavity and the bladder capacity had increased to 3 ounces. There existed a partial epispadias. The mother was instructed to continue the dilatation of the bladder and to return with the child in October.

Comment.—By this operation a case of exstrophy of the bladder with epispadias has been reduced to a case of epispadias. I see no reason why a urethra may not be successfully constructed and a sphincter made for it from the gracilis muscle as was accomplished in the preceding case. Should these steps fail the ureters may still be implanted into the rectum but to have done so without an attempt at restoring the child to a normal condition rather than the unfortunate one of having him urinate through his rectum would have been to admit defeat.

CLINIC OF DR HENRY B SHERRY

PASADENA HOSPITAL

TWO CASES OF BENIGN INTESTINAL OBSTRUCTION

INTESTINAL obstruction is essentially a surgical condition. Leaving aside for the purposes of this discussion all types of partial or chronic obstruction including carcinoma we still have a long list of causes of the condition. Acute intestinal obstruction may then be caused by:

1 Foreign bodies gall stone parasites intestinal calculi and masses of fecal matter

2 By bands either caused by a previous inflammatory condition adhesion following operations or the various abnormal bands of fibrous tissue that result from developmental conditions

3 By internal hernia as through the inguinal or femoral rings the foramen of Winslow hernia into Douglas pouch projecting into the broad ligament of the uterus through the dia phragm

4 By incarceration of the bowel in slits or holes as in the mesentery or omentum

5 By peritoneal adhesions a chronic peritonitis causing constriction of the lumen of the bowel without strangulation. One such case was reported by Welch in 1907 in which a chronic thickening of the wall of the peritoneal covering had caused obstruction by a complete infolding of the mucous lining of the bowels

6 Due to structure tuberculosis syphilis

7 Constrictive stenosis

8 Compression by tumors from without

9 Intussusception

10 Volvulus

Taking this into purely as an academic background and fully realizing that I have not exhausted the causes may I present the history and operative findings in 2 cases of benign acute intestinal obstruction.

C. I.—A man 5' 6" 135 lbs had been admitted to Los Angeles County Hospital July 11, 1944, with pain in the right upper quadrant, nausea, vomiting, constipation, and had been gassy and had passed flatus. Subsequently he had been admitted to the hospital.

As child he seemed small but well nourished to 9 years and played as the older children. At three years old he had a fever of 102° F., vomited, and had diarrhea. He had a cold, fever, and pain in the abdomen. He vomited after taking food and was fed by his mother. Then he vomited again after taking his meal. He vomited again two days later. In the next week he vomited again. He had a fever of 102° F. and vomited again. When my service mate was especially kind to him and said that he had got into the guardhouse because he had bellyache, he said that he had been admitted to the hospital.

The patient was located in the middle of a severe cramp-like pain in the upper abdomen which had been continuous for two days. The boy had a very great pain between the two bouts of vomiting. The abdomen was distended and tender. The first seen and before it was possible to examine him he vomited again. He said he had been admitted to the hospital because he had been vomiting. The last attack of pain had begun about 2 weeks before admission. He vomited again after admission. The abdomen was distended and tender. The pain was continuous and progressive. The rectal examination was negative. A malaise had been present for 8 weeks. On July 10th he had been admitted to the hospital.

The boy as seen in the evening of July 11th soon after his admission and has been mentioned no history could be obtained. He was found in bed lying in his left side having had an abdominal pain for several days before admission. He had a fever of 101° F. and a pulse of 14,000. Rectal examination was negative. There was an acute abdominal

recognized though it was my impression that we were dealing with a perforated appendix with peritonitis (However I mentioned to the intern at the time that I could not link up the diagnosis with the apparent aaronv the patient was suffering and mentioned the possibility of obstruction)

As soon as possible the abdomen was opened through a right rectus incision. On opening the peritoneum evidence of obstruction appeared. The point of constriction presented itself dependent from this was a greenish sac about the size and shape of a bantam egg, following the band around the other end was found to arise from a distended portion of the ileum. It was evident then that we were dealing with a Meckel's diverticulum and going further it was found that this long band had tied itself into a single knot around a loop of ileum in such a way and with such force that the distal free end became gangrenous. It was necessary to cut the band at the ileum and also at the point of constriction before it could be released. The bowel readily returned to normal. The abdomen was closed without drainage and the boy made an uneventful recovery being discharged from the hospital on July 25th two weeks later.

Comment.—Meckel's diverticulum was probably first mentioned in the literature by Lavater in 1641 who reports seeing a case of this character in a patient in Paris. In 1701 Ruysch presented an admirable illustration of this malformation. But it is to Johann Friedrich Meckel known as the younger one of four brothers all of the same family comprising grandfather, father and brother that we owe our best description of this condition. This he published in 1817.

Meckel's diverticulum is not particularly rare. It is a short wide protrusion which is found springing from the lower part of the ileum in about 2 per cent of the bodies examined. It is usually about 2 inches long and generally its end is free but occasionally adherent to the abdominal wall adjacent viscera or the mesentery. Most commonly it is found about 2 feet from the ileocecal valve though it has been found as close as six inches and as 17 feet. The diverticulum is due to

the persistence of the proximal portion of the vitelline (vitello-intestinal) duct which connects the primitive intestine of the embryo with the yolk sac. In shape it may be cylindrical conical or cord like.

Obstruction with Meckel's diverticulum is usually due to a loop of small bowel being incarcerated over a band the distal end of the band being adherent. The most rest in the case just reported to me lies in the fact that the distal end of the diverticulum was free and of such a length that the obstruction had been caused by a definite knot around the gut.

A comprehensive report of obstruction by Meckel's diverticulum appears in Minnesota Medicine for August 1973 by Dr. James A. Johnson.

He says that Head's estimate that in 991 cases of intestinal obstruction collected by various authors 6 per cent were caused by the remnant.

He recognizes four ways in which this may be caused:

1. When diverticulum is attached to the abdominal wall mesentery or sac which may cause anulation of the bowel or the small gut may twist itself about the cord.

2. When longer than typical floating free in which case it is not infrequent for it to knot itself about the bowel as if carefully tied.

3. Invagination with intussusception

4. The diverticulum or continental stoma may burst the bowel.

The most common form is brought about by the constricting band. Wellington collected 326 cases of Meckel's diverticulum and found 144 obstructed in the manner of 59 by intussusception and 9 by volvulus.

The author points 3 cases that in which the fibrous band was adherent to the mesentery and a loop of small bowel had become caught the second in which the band had adhered to the bottom of the sac of a scrotal hernia with occlusion of the bowel and the third in which the fibrous tip was adherent to the small bowel with resultant intussusception. These three cases recorded add up more than the mortality is high.

due to the fact that 6 per cent of obstructions are due to this condition. He makes a plea for a better recognition.

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B rd d D I	7 3

One case was found reported in the April 1923 number of the British Medical Journal which simulated appendicitis; the author

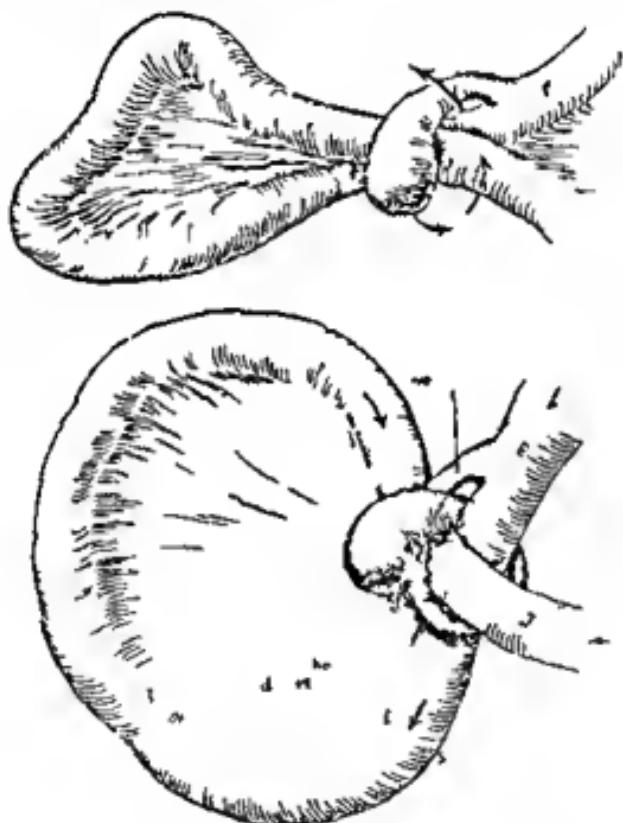


Fig. 63.—Case I Ad t I m ty g ff 1 p f m ll bo 1 (T C C II D fth Umbil)

made a gridiron incision, found it necessary to make a midline and make a plea for a midline incision in acute abdominal cases.

In that admirable book of T. C. Cullen "Diseases of the Umbilicus" the report of a case in every way comparable to mine

with wonderful illustrations which I have taken the liberty of reproducing. The way in which the knot was tied and the bulbous tip of the diverticulum are identical, the only variation being



Fig. 564.—Case I. M. k. i. d. v. t. I m. m. p. l. t. t. y. g. f. f. loop f. m. a. l. b. o. l. (T. C. C. II. D. s. e. s. e. f. h. U. m. b. l. e. u.)

in the treatment for I was fortunate in being able to release the obstruction without resection of the gut.

C. II—A m. f. ty. sea. h. a. m. p. l. g. f. pa. th.
I. bd. m. l. ky. h. sea. d. m. t. g. f. f. d. y. d.
t. t. ed. h. l. sad. ll. l. l. F. b. r. u. r. 19. 5
H. g. h. f. l. l. o. g. h. n.
Th. m. th. p. l. h. l. k. g. h. se. e. a. t. t.
t. p. p. d. loose. b. o. a. d. d. f. II. L. u. g. h. h. t. l. f. h. b. d. m. ss.
sca. t. l. g. f. l. l. g. h. h. b. d. p. a. h. b. d. m. d. m. a. k. e. d. se.
d. g. t. d. t. l. h. h. d. b. k. h. p. t. h. r. y.
Af. th. c. d. t. r. w. t. f. d. y. h. p. a. t. id. h.
tta. k. f. pa. ut. h. b. d. m. s. e. m. g. local. h. m. s. e. s. d. th.
m. b. l. cu. T. h. se. l. k. f. sp. t. t. l. l. f. f. h. d. h.
pass. ff.
F. day. p. h. m. l. sa. l. m. t. pa. t. a. g. t. k.
h. g. l. g. h. se. t. b. e. d. g. h. f. id. pa. h. gh.
d. f. h. t. l. m. t. l. h. l. b. m. p. h. f. h.

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 g which h ed b trut tdl t fth m N bsm th al
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Fig 565—C ell Sp m m I pp d (D w g by P S D)

took pat t d h lf ye a t co f m f mth t tm h h
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 cabbag milk f fed food H w l y t bl d with g h
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 t h p tll h b l tt k f t p d y bl d
 h d h d j d

At the time I saw the patient he was lying in bed on his back in no apparent pa at that mom nt h s ev s reacted to light and accommodation he had a fe carious teeth his chest was clear th u hout bl od pr sure 140 90 heart was normal in size with no murmu or a lentit uss unds his abd men t as

the point of interest there was no apparent distention but in the midline just above the umbilicus was a visible tumor mass which on palpation seemed to be about the size of an orange which could be moved slightly from side to side and was not particularly tender. There was no visible peritoneal or evidence of free fluid no other masses palpable. The spleen was not enlarged the liver dulness was not increased rectal examination was negative.

Urine—Specific gravity 1.021 albumin none sugar none casts occasional hyaline

Blood—Red blood-cell 4,500,000 white blood-cell 8700 hemoglobin 80 per cent

x Ray—As mentioned

The supposition was that we were dealing with an obstruction caused by malignancy probably in the transverse colon operation was performed for relief. Fortunately the abdomen was opened through a right rectus incision no free fluid was found the transverse colon with this palpable mass was easily brought into the wound where it was found that the outer coat of the colon could be slipped back and forth over the mass which instead of being hard was resilient to the touch after a little manipulation it was found that the mass within the colon could be moved toward the right. The right iliac fossa was then palpated and an abdomen of the cecum noted it was determined that we were dealing with an intussusception which was easily reduced. The cecum was brought into the hand and the specimen which I now show you replaced the appendix. Fortunately the edematous tissue did not involve the ileocecal valve and it was possible to remove the appendix with only a small part of the cecum. This involved an uneventful recovery and is well.

Comment—I have seen a good many different types of appendiceal inclusion two small mucous cysts at the tip but it has never been my fortune to have met one of this character before. Pathologically it is a retention cyst or mucocele. This specimen measured 9 x 3 mm as filled with a clear mucoid like material and microscopically a lining.

An excellent description of this type of appendix is given in Kelly's *Vermiform Appendix* under the term retention cyst. The size and position of the cyst he says are dependent on the point of constriction whether at Gerlach's valve or distal to it. They are usually cylindrical in shape and vary from the size of a lead pencil to 1 to 3 c.c. Sonnenberg refers to one 14 cm in length and 21 cm in greatest circumference. Virchow describes an appendix which was as large as a fist and Elbe refers to one removed from a woman of fifty two which was as large as a child's head 5 2 x 7 2 inches.

Pathologically it begins by an occlusion at some point in the appendix with a mucous discharge which becomes watery and later mucoid. Adhesions on the peritoneal surface are rare.

With reference to the rôle the appendix plays in intussusception we glean the following from Vol VI of Keen's Surgery in 1911. Moschowitz gave the details of a personal case and states that it is the only one observed in 500 cases of appendicitis at the Mt Sinai Hospital in the eleven years preceding.

There are three types:

1 Partial intussusception. There were up to 1913 8 cases of this type recorded.

2 Total intussusception in which the whole appendix is inverted like the finger of a glove. 1 cases reported.

3 In which the appendix acts as a foreign body finally resulting in ileocolic intussusception 16 cases.

Spurrey and Niquet reported one case in the Ohio Medical Journal for 1922 that I have been unable to secure.

M H Bigg in *Surgery Gynecology and Obstetrics* for November 1921 also reports case due to tumor.

In the British Medical Journal for October 1924 J Gayme Jones in an article on the general subject of intussusception state that it is interesting to note that a pathologic condition of the appendix is but seldom to be found as the cause of the trouble mentioning only one case of intussusception of cecum appendix and 1/2 inch of the ileum. This was reduced and an appendix 4 x 2 inches with the distal end containing fluid the lumen obliterated proximally. *stricture*

Mechanical pathology always interests me—the why of a condition. Probably this man's pathology date back to his attack eighteen years ago. His digestive troubles were undoubtedly caused by the appendix which has lain latent for a long time. An injury sufficiently severe in character and force applied at just the right angle against the tip of the unyielding appendix was all that was necessary to initiate an invagination of the ileum and cecum. I cannot but feel that this occurred at his second injury when he noticed the acute pain of bending over. Could not the tip of the appendix impinge on the pelvic wall have initiated the intussusception and the castor oil have added the finishing touch?

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CLINIC OF DR PFA SMITH

HOLLYWOOD HOSPITAL

A CONSIDERATION OF GALL BLADDER SURGERY

GALL BLADDER urgencies during the past ten years has seen the swing of the pendulum wide in each direction from the center of conservative and reasonable treatment of infection. Ten years ago in the larger clinics where the policy of gall bladder surgery is molded the cases ran 80 per cent drainage and 20 per cent removal. Because of a failure of symptomatic cure between 5 and 10 per cent of the patients treated by drainage for all types of gall bladder disease the pendulum has swung back so that three years ago in the same clinics the proportion of removal was 90 and the drainage 10. Removal of the infected gall bladder has undoubtedly cleared up the symptoms for which the patient was operated upon in a larger percentage of cases than the simple drainage.

In the past two or three years a new type of surgery of the biliary tract has come into prominence that of common duct obstruction without tone and without new growth. This difficulty following cholecystectomy has necessitated a secondary operation which has proved very difficult of performance and to have a very high mortality. In all of these cases that I have had an opportunity of studying the foramen of Winslow has been closed. The lumen of the common duct has been obliterated in more or less its entire length by a secondary contraction of the inflammatory exudate surrounding it. In view of the fact that the removal of the gall bladder is likely to be followed by a complication so serious that it necessitates a life saving operation while the secondary operation for drainage is simple and not attended with a high mortality the question arises whether

or not more care in the selection might not be used in the case to be drained and those to be removed or perhaps a change in technic in the gall bladder removal which would prevent the loss of the normal support of the common duct and the collapse of the foramen of Winslow and so hold the common duct out of the lake of plastic lymph that collects in the fossa between the right kidney and vertebral column so that the obstruction would not occur.

The steps in the ordinary technic in the gall bladder removal is a familiar one whether done from above or below. The cystic duct is isolated ligated and dropped back. The cystic artery with its surrounding tissue is ligated and dropped back. The gall bladder is removed from its attachments to the liver and the raw surface covered over. It occurs to me that the isolation and the dropping back of the cystic duct take away the normal support of the common duct and allow the common duct to lie slack against the posterior peritoneum in the bed of the lesser omentum. The common duct is therefore lying in more or less of a pool of plastic lymph and is surrounded by a thick membrane which slowly contracts until the lumen of the duct becomes partially or wholly obliterated. This process is a slow one and our had results do not become clinically manifest for a period of several months to two or three years so that the benefit by a change of technique must necessarily be very hard to prove. However in face of the fact that common duct surgery after cholecystectomy is becoming more and more necessary and the constant finding of the inflammatory obliteration of the duct adherent to the posterior peritoneum is in my mind justification for an attempt to leave the support of the common duct undisturbed in the removal of the gall bladder. In many cases it is a very simple procedure to cut the peritoneum of the gall bladder parallel to its attachment to the liver on either side and from above down and peel out the gall bladder muscle mass next the cystic duct. The cystic duct then lies without obstruction from its surroundings below the point of ligature so that the stump of the common duct has the same protection as the head of the

liver by the tissue intervening that it had from the gall bladder attachment to the liver. This support can be regulated by the ligature or sutures between the stump of the duct and the liver. In cases in which the wall of the gall bladder is so thickened that it cannot be peeled from the liver in the manner described above a peritoneal cuff is made from the lower anterior surface of the gall bladder continuous with the peritoneum of the cystic duct and this cuff is stitched to the denuded surface of the liver. Either one of these procedures does not lengthen the time of the gall bladder removal or add to its danger and except in the short fat patient with deep contracted gall bladder is of easy performance.

It seems to me that three distinct elements enter into the problem of election of operation. They may be alone or in any combination. Usually all three are present in the same case. They are:

- 1 Mechanical obstruction of biliary passages
- 2 Infection of gall bladder wall
- 3 Infection of liver ducts

The mechanical obstruction unaccompanied by active infection of course is simple because it must be relieved mechanically and the operator chooses the way that is easiest for him to do.

No one will contend that the grossly infected gall bladder wall should be left under any circumstances that would permit of its removal.

In the presence of the third condition I think that whatever is done drainage of the liver ducts must be a part of the procedure.

This sounds very simple if these conditions would occur singly but in the nature of the development of gall bladder disease it is almost impossible to have a gall bladder condition demanding operation which does not have a combination of at least two of the three elements.

McArthur and Lobinger have reiterated for years the fact that the diseased gall bladder is only a small part of the general infection of the biliary tract and that a routine operation

(if a routine operation is to be used) one that drains the bile ducts will effect a cure in a larger percentage of cases than one in which drainage is not considered. I am sure that they are right in this and I am also sure that many different surgical shifts may be used to accomplish a removal of the infected gall bladder wall and drain at the same time so that it will not be necessary to make a flat choice between cholecystectomy and cholecystostomy.

I should like to mention a change in method of separating the gall bladder from the liver that not only seems to make the removal technically much easier but also leaves the liver surface smooth avoiding the necessity of any sewing to cover the denuded surface. I am in a quandary whether to call it the hydraulic method or the method of infiltration dissection either describes it. A 10 cc syringe full of salt solution is injected between the gall bladder and the liver under the reflection of the peritoneum which immediately balloons. Upon division of the peritoneum the gall bladder is found to be separated entirely from the liver except for the peritoneum which is easily divided without oozing. The solution under tension seems to separate the two structures in the normal plane that a knife or blunt dissection will not follow and it has been a great surprise to me to see how easily the oil bloods are absent from chronic or repeated attacks of inflammation around them. I e with the sulphuric acid a little fluid.

CLINIC OF DR. GEORGE W. SWIFT

KING COUNTY PROVIDENCE AND VIRGINIA MASON HOSPITALS
SEATTLE WASHINGTON

THREE CASES OF SPINAL CORD TUMORS

THE differential diagnosis and localization of a spinal cord tumor may at times offer difficulties. It is for this reason that I am presenting *three interesting cases of tumors of the spinal cord and its membranes*.

Case I The first case brings up the question of atypical disseminated sclerosis, paroxysmal type or tumor of the spinal cord.

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192

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Serologi report b ws t ty lymphocyt th cerebrosp l fl d pos negl b lin egative W sserm

Summa of the Case—We have here a history of pain in the back and upper abdomen two year duration con t pati pare thenia and paralys of the spa tic type in both lower ex tremities positi e signs of comp ec ion of the pinal cord at about the level of the fifth thoracic segment There is also pallor of the disks and nine lateral m tarmus The Queck n stedt test is po tive and the cerebro pinal fluid is amber colored there i lymphocyt i and increased globulin The rax doe not show any boni chan e

We must consider from a differential diagno tic standpoint extradural pinal cord tumor extradural tuberculoma and the pinal type of disseminated sclero with possible arachnoid and dural adhe on "win, u a subarachnoid pinal block The probable diagnosis howe e i extradural tumor at bout the le el of the fifth thoracic segment probably po tenor

Operatio—Exploratory laminectomy June 7 19 at the King County H pital Seattl Washington The b ck wa prepared by cleansing three times with soap gauze scrub and water two appl cations of alcohol and the enture h ld tre ed twice with an alcoh lc preparati n of mercurochrom per cent drapes applied I ci i n from the third thoracic spine to th twelfth thoracic pine outlined Skin incised and bleedin controlled Muscles and fa-cza separated from spinou processes and bleed n controlled by h t gauze pack I terp n 1¹

ments severed spinous processes removed Palpation within the incision revealed a firm globular mass to the left of the mid line between the third and fourth thoracic vertebral arches On retracting the incision and exposing the mass it was found to be a globular bluish firm tumor extruding between the third and fourth thoracic arches A thin pedicle extended inward Removal of the third and fourth vertebral arches revealed a smaller tumor within and firmly adherent to the dura the latter thickened and no pulsation visible or palpable There were slight osteomyelitic changes in the vertebral arches above and below the tumor On manipulating the tumor it ruptured revealing a soft reddish granulomatous material The tumor was easily removed A thick fibrous membrane was dissected off the dura and the dura beneath this fibrous membrane was normally bluish and pulsation were visible

Pathologic Report—F bromyolipoma of inflammatory origin

Subsequent Report—Four days following the operation the patient was able to detect sensation in the lower extremities There was a gradual return of all the modalities of sensation beginning in the feet and gradually extending up toward the chest The return of motor power has been somewhat slow but at the present time the patient is about the ward in a wheel chair and is able to walk with the aid of a cane There is no pain and the incision is healed May 9 1928 patient is able to walk about and operates an elevator for six hours each day

Case II—The second case which I will present to you is complicated by a severe anemia The outward appearance of the patient to date with several blood pictures at once aroused the question as to whether or not we were dealing with pernicious anemia

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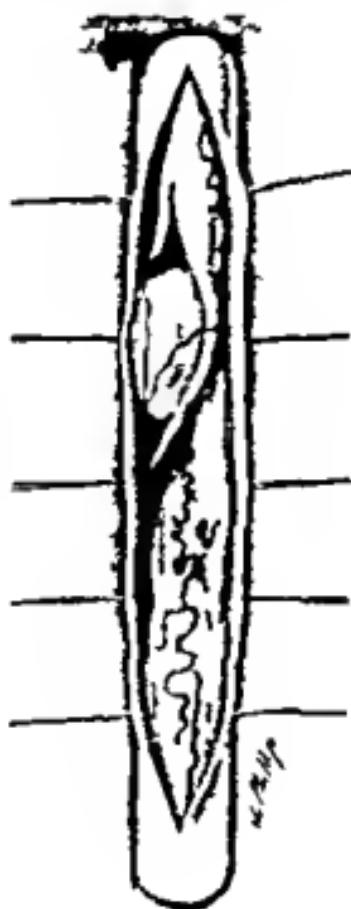


Fig. 566.—P. d. cell p. 1 (Second instar).

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S lg —Spot g l t f th f d w m g C l l 2
W na g t

Summary of the Case. —Pain in left shoulder and chest walls for about two and a half years gradually increasing stiffness and weakness of both legs. Chronic constipation. Severe anemia. Neurologic findings of spinal cord compression in the upper thoracic segment. Positive Queckenstedt test.

Differential Diagnosis. —Pernicious anemia with spinal cord degeneration. Malignancy with metastasis to the spinal cord. Spinal cord tumor extramedullary.

Probable Diagnosis. —Extramedullary tumor of the spinal cord at about the level of the second and third thoracic segments, probably on the left side.

Operation. —The first stage of an exploratory laminectomy was preceded by a direct blood transfusion. About 500 cc of whole blood was given. First stage laminectomy, Providence Hospital No. 3197. Usual preparation back cleansed with soap and water three times, alcohol applied twice, two applications of mercuriochrome. Incision outlined from the seventh cervical to the fourth thoracic spine applied. Skin incision

made and bleeding controlled. Muscles and fascia separated from the spinous processes, pines removed and vertebral arches resected out. Considerable bleeding occurred at this stage which was partially controlled by hot pack the muscles being soft and pliable. On exposure of the dura there were no visible pulsations or palpable mass. The dura was opened and in the upper angle of the incision the tumor was seen just above a ballooned-out pocket in the arachnoid. At this stage of the operation the patient's condition became somewhat serious and there were signs of impending shock. The incision was closed and the patient left the table in fair condition after stimulation and 1000 c.c. of Ringer's solution given subcutaneously.

Second stage November 10, 1921. Alcohol and tincture of iodin preparation incision extended up to include the fourth cervical. Dura opened normal pulsations above with no pulsations below and what seemed to be a definite bulging of the arachnoid. Under the ballooned-out arachnoid an oblong yellowish tumor could be seen about the size of a lima bean. This was lying on the left side of the spinal cord just under a spinal sensory root and was identified as the third thoracic sensory root. The arachnoid was perforated and what appeared to be an accumulation of cerebrospinal fluid was found to be the air which had been insufflated for diagnostic purposes. The tumor was easily shelled out from its capsule and removed with the exception of a small portion of its pedicle this was adherent to the root on the left side. The incision was closed and the patient left the surgery in good condition.

Pathologic Report—Pineal fibroblastoma

Subsequent Course—Convalescence has been slow. The patient rapidly cleared up and the sensory defects are now almost imperceptible. He has had a good trousseau. Has been on the Murphy Minot diet. The blood picture on leaving the hospital showed hemoglobin 44 red blood cells 2,880,000 white blood cells 23,600. The wound has healed nicely and the patient is free from any pain. The last hemoglobin estimation December 24, 1921, shows 0 per cent.

Case III—The third case in this series of tumors of the spinal cord is one of extreme interest for the reason that we were at a loss for some time to make an accurate localization of the neoplasm. After several careful neurologic examinations we decided that the tumor in all probability lay at the level of the tenth thoracic segment probably on the left side and slightly anterior. You will observe that there were no motor or sensory disturbances in this case. Summary of the case follows:

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Fig 56.—J K V g M so II pt I Sp I dt m (See history
 (C III))

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Summary of the Case—History of severe pain in the back radiating into the left side only at duration. Negative motor and sensory finding. Questionable pyramidal tract and reflex latencies slightly above tenth vertebral spinous process diminished vibratory sensibility below. Patient's general condition anemic undeniably worn out from lack of sleep. Spinal fluid finding strongly suggestive of tumor. In the east it was thought that the patient might be suffering from a large peritoneal tumor with metastasis into the cord. His general condition suggested the possibility of this condition. However it was considered that he was probably suffering from a spinal cord tumor extramedullary, in opposite the tenth thoracic segment possibly laterally anterior. On the finding an exploratory laminectomy as recommended.

Operation—Exploratory laminectomy Virginia Mason Hospital April 12, 1978. Patient is placed on his face the table tilted in the midline so that the back is given a slight angulation in the midline. The seventh cervical pinous process was dentated blue pencil lead and the twelfth dorsal likewise identified. Slight tenderness over the tenth dorsal spinous process and a mark made about 2 inches proximal to this with a blue pen laterally local in the probable location of the tumor. The back as lean to see with a line over the entire posterior surface the application of alcohol over the navel and to light application of iodine. Incision is until I tend to get in the fifth lumbar pinous process to about the fourth lumbar process to el and it is applied. The knife is mil and

bleeding controlled with hemostats and Andrews clips Skin towels were then placed and the muscles evered from the spinous attachments on either side working from above downward and separating first on the left side then on the right and packing with long strip of gauze wrung out of hot Finger's solution The interspinous ligaments were then severed the self retaining retractor inserted in the upper and lower angles of the incision and the spinous processse then removed The arches of the vertebrae were removed with the rongeurs making an exposure from about the twelfth dorsal to the seventh dorsal spines After removin the arches of the vertebra and running the finger along the exposed posterior wall of the dura pulsations were felt above and below but there was a hard globular mass palpated ju t oppo site the space between the sixth and seventh spinous proces es The ixth spinous proces and arches were then removed and it was seen that we were deahng with a firm intradural tumor All bleeding controlled with hot packs Cotton padding was placed around the incision walling off all muscle areas the trou h on e ther side was dried the dura inci ed and the in ci n ca sed above and below with right angle scissors Four tension sutures were placed in the cut margins of the dura and in the uppe angle of the wound a round pinkish tumor was seen lying to the left and some what anterior to the spinal cord just opposite the sixth and se enth vertebral bodies placing it in the re ion of the ninth and tenth tho acic segments The pos terior root of the ninth thoracic segment passed above and in front of the tumor while the tenth thoracic r ot passed below the tumor The spinal co d was pushed to the right and the left lateral surface fl ittened and distinctly grooved by the tumor Below the tumor the posterior spinal vertebral vessels were varico ed The arachnoid belo the tumo mass ballooned out and had the appearance of a j lly like substance within its me hes The arachnoid was nicked and there was an immediate gush of c r bro pinal fluid Working away from the spinal cord the tumor s e silv shelled out by nicking its capsule There s no bleed g The pedicle was dissected down the root was lig te l abo e and bel w nd the tumor removed without diffi

culty. Slight capillary oozing was then controlled and the dura was closed with a continuous linen suture. The cut muscles approximated the fascia sutured with interrupted sutures 1 cm apart all bleeding controlled. Fine black linen sutures inserted 1 cm apart closed the subdermal layer. The final closure was made with straight 1 cm apart margins of the wound treated with tincture of iodio dressin applied and a thick padding with adhesive tape completed the dressing.

Following the operation the patient had complete relief from pain. He improved rapidly and was seemingly making very good progress until April 9th when he suddenly developed symptoms of pneumonia in the right chest. This was considered as a possible embolic pneumonia was treated as such and he gradually improved but on April 13th early in the morning the pulse suddenly became very rapid and irregular and signs of a pontile embolus made their appearance. He developed ptosis of the right lid, paralysis of the left side of the face, pyramidal tract signs and had difficulty in deglutition and respiration. The pupils were small almost pinpoint constriction and he was considered to have suffered from a pontile embolus. He rapidly developed coma and died in the afternoon. Postmortem could not be obtained.

Comment—These cases demonstrate the value of a carefully taken history. In each case the onset was characterized by pain. This was of great value in giving us a leading clue as to the probable site of the tumor. In the third case it was very important inasmuch as the manometric tests did not show a positive spinal subarachnoid block and the we could sensory or motor disturbances. Had it not been for the careful elicitation of the initial root pain together with the other signs and findings from which the localization was made in all probability we could not have curiously localized the tumor.

The second point of interest is that in each case the cerebrospinal fluid was amber colored. There was an increase in lymphocyte in Case I and III a fairly common occurrence in spinal cord tumors. The Quetelet test was positive in Cases I and II and negative in Case III. In the latter had a

very marked xanthochromia and spontaneous coagulation of the cerebrospinal fluid yet were unable to demonstrate a positive Queckenstedt and the air which was insufflated traversed the spinal subarachnoid space and entered the ventricles. In the second case an insufflation of air was made and this demonstrated root pain and spinal subarachnoid obstruction the patient complaining of pain in the left shoulder and down the arm into the fingers.

CLINIC OF DR'S ALANSON WEIKS AND C. D. DILLI RAT
ST. LUKE'S HOSPITAL SAN FRANCISCO

ARTERIOMESENTERIC OCCLUSION OF THE DUODENUM

T spt t S thm g th t f y H g
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In view of the past history which is so typical of an ulcer and in view of the perforation which is known to have occurred we feel that the diagnosis of duodenal ulcer is very probable especially since this patient had been allowed to retain teeth which so frequently are a source of infection that may be responsible for ulcers of the stomach and duodenum. More than once patients have come to our office complaining of stomach

trouble and are referred to a dentist for tooth extraction and we find that their ulcers get well without operation.

This patient's symptoms however have persisted and he has not improved on an ulcer diet. There is no question about the deformity of the duodenum as seen in the x-ray and know that there has been operative interference in this region we must consider postoperative adhesions as being the cause of this man's symptoms. Last year we reported a series of cases in which abdominal adhesions had been the cause of very definite symptom. One of these cases had a typical ulcer history and had been diagnosed by a most competent internist as having a duodenal ulcer. He had a constant defect of the duodenum which was shown on three successive roentgenologic investigations but when he was operated upon only a fiddle-string adhesion in the region of the duodenum was discovered. His symptoms were immediately relieved upon cutting this adhesion.

As we see this patient he is of long slender build. His musculature is not very heavy. He might be called an asthetic type. Although his work is fairly heavy. These people are often viscerototic and we have had patients before of this type in whom the mass of the intestine pull across and occludes the second or third portion of the duodenum. They are more apt to have symptom of obstruction with distention of the stomach after meal pain and headache. These patients frequently learn that by pulling up on the abdomen with both hands below the umbilicus or by lying down their symptoms are relieved. When they lift up on the mass of intestine the tension on the mesentery is released and the gas and food are all worked on. The patient has not noticed that his pain is relieved by lying down and vomiting has not been one of his prominent symptoms.

We will now make a high anterior incision. The fat very easily moves. The rectus muscle lies very poorly developed and we have no difficulty in pulling the fibers away from the midline. The peritoneum is opened without difficulty and immediately below the large stomach. The stomach is definitely distended and the all is picked up appearing thicker

than normal. There is evidently some hypertrophy of the stomach muscle. There are a number of string and band like adhesions in the region of the duodenum which bind the duodenum to the region of the gall bladder and even to the free edge of the liver. Some of these are cut between ligatures other can be pushed aside with a sponge stick.

The antrum pylorus and duodenum are now freed. We do not see the pyloric vein and in fact the whole pylorus and first part of the duodenum is greatly dilated. On feeling along the region where the pylorus should be there is a little thickening and induration. This is the greatly dilated pylorus and right next to this region is a little pale area which had been covered by adhesions and was probably the site of the former perforation. It is not indurated now.

Even though there are a number of adhesions it is remarkable that there are not more. Looking under the omentum and colon we see that the dilatation is carried down to the second portion of the duodenum but the jejunum is collapsed. On passing the finger below the jejunum and toward the right side one may pick up the mesentery. This is almost without fat and drags down in a rope like cord across the transverse portion of the duodenum. We may raise it without difficulty and immediately gas runs through into the jejunum. It is perfectly evident that here is the cause of an obstruction and we are surprised that the patient has not had more vomiting.

Various operations have been suggested to remedy this condition. The one that is probably the most popular is that of a duodenal jejunostomy which was devised by Steeley in 1907 and consists of bringing the jejunum over either above or below the transverse mesocolon and anastomosing it to the dilated portion of the duodenum. This operation is not without danger however for occasionally the obstruction may continue due to insulation at the site of the anastomosis.

In this case we prefer to perform a posterior gastroenterostomy on account of known former ulcer. We will now make our small incision in the transverse mesocolon and push through it a portion of the posterior surface of the stomach near the py-

lorus and holding it in a stomach clamp will now select a loop of jejunum and hold it in a clamp in apposition to the former. It is important to have the intestine open tightly. We use a fairly long loop. Recently we had occasion to take down a posterior gastroenterostomy for a marginal ulcer and the trouble and difficulty we had at that time owing to the use by another surgeon of an extremely short loop have decided us always to use a long loop.

We have now completed the anastomosis and anchored the stomach to the opening in the mesocolon. You notice that there is very little fat in the abdomen. These cases of arteriovenous enteric ileus if taken when the symptoms are still mild are often cured medically by fattening the patient. When the mesentery is filled with fat there is more support to the intestine and less danger of occlusion of the duodenum.

Another operation that has been devised by Kell is the support and fixation of the hepatic flexure of the colon and the cecum as a means of relief of the enteroptosis. In this patient however we doubt whether such a procedure would be of value. The pathology which we have here has been blamed for acute dilatation of the stomach with all the symptoms that that include whether postoperative or after a meal.

We now close the abdomen without drainage and the patient will be sent to his room in good condition.

Postoperative Course.—Following operation the patient had a moderate amount of hemorrhage from some small vessels which had apparently leaked at the site of the anastomosis. He was kept perfectly quiet and fluids withheld under which treatment the hemorrhage soon stopped. In thirteen days he was able to leave the hospital. Two months following his discharge from the hospital he reported to our office. He had been kept on an ulcer diet as a precautionary measure and had gained a pound in weight. He felt very well and had no pain at all. He was told to gradually return to a normal food and take plenty of exercise.

CLINIC OF DR JOHN HOMER WOOLSEY

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GASTROSTOMY

GASTROSTOMY may be made a more simple procedure for the surgeon and less incapacitating to the patient. This same technic has undoubtedly been employed by others and Binnie describes a somewhat similar operation yet no harm will come from reiteration and description of an excellent but apparently forgotten method. At the University of California Clinic we have for some time employed with great satisfaction the mushroom or so called Pezzer's self retaining catheter in several procedures among which is gastrostomy. The use of this type of catheter and a technic according to Stamm comprises the method. It is performed as follows:

Under local anesthesia a 6 cm incision is made in the upper part of the left rectus muscle. After entrance to the peritoneal cavity the anterior wall of the stomach in the midfundic portion or even more proximal and midway between the lesser and greater curvatures is picked up by an Allis forceps. About this point three separate concentric purse string sutures of absorbable material are placed allowing the end to be located at different points of the circle. An incision is then made into the stomach and digital exploration or direct view by an endoscope employed if desired. A mushroom catheter F 24-27 is then passed into the gastric opening and drawn back so as to fit snugly against the gastric wall. The purse string sutures are separately tightened about the gastrostomy tube and tied. Each suture tightened invagination of the stomach wall about the tube automatically takes place. The stomach is

then attached to the parietal peritoneum by two interrupted sutures of B silk so placed as to include both edges of the laparotomy wound and assist in closure of the peritoneum and posterior rectus sheath. A portion of omentum is placed about the gastroperitoneal junction and then the remaining wound closure effected. A rubber cuff previously slipped over the catheter is now adjusted to the skin level and by means of a

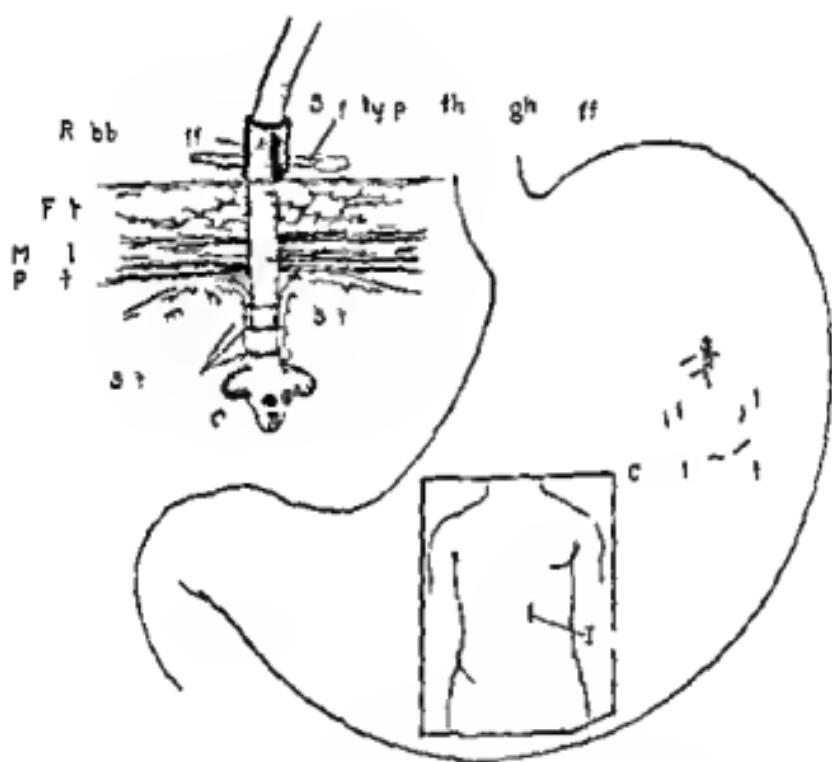


Fig. 564.—Gastrostomy done by the simple technique.

safety pin through the rubber cuff and adhesive is held in place. The patient is allowed to be up and about the following day and to leave the hospital in two to three days.

The advantages to the surgeon are an easy procedure and no local anesthesia; the definite length of time to the stoma is the assistance holding the stomach against the parietal wall for traction until leakage occurs from the original suture with the wall muscle. The advantage

to the patient are less incapacitation and less pain due to the fact that ordinarily a great length of tube is left in the stomach undoubtedly reaching the pyloric canal or even the pylorus itself. Eventually if desired the catheter can be easily extracted or a new one easily inserted by the use of an obturator.

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RADICULITIS IN RELATION TO ABDOMINAL LESIONS

RADICULITIS is a symptom complex manifested by alterations of sensation or motor function which show by their distribution that the disease process is in the spinal root. Pain is the complaint.

Pain more often than any other subjective symptom brings a patient for consultation. Pain is a commonly understood and a commonly used term and yet many people employ other terms synonymous such as aching, distress, gnawing, burning, misery, etc. As physicians interpreters of physiology and pathology we must be alert to interpret accurately the patient's method of expression or we fail in our duty. One cannot be content with the bare complaint of pain. Pain has many aspects and when completely recorded correct deductions usually follow. It is therefore necessary to ascertain the character, its time of occurrence, its relation to food intake, its relation to position and to exercise, its mode of onset, any tendency to recur in attack, its distribution as to peripheral nerve or a localized term alending it radiation and finally its mode of relief.

Pain from a hollow organ attempting to empty is cramp like in character. An inflammatory area gives a throbbing pain. An irritation of a nerve ending as in an ulcer, a pleurisy, or a traumatic wound as a gash gives a burning or knife like pain. An irritation of a nerve along its course as in a so called neuralgia or a prolonged abnormal pressure upon nerve roots gives either an electric or shooting pain or a dull aching pain of varying degree. Thus the character of pain determine to a degree the location and cause.

Features such as muscle spasm, impaired mobility of a part, part of the body, disarrangement of physiologic func-

tions loss or gain in body weight loss of body strength and laboratory procedures aid in arriving at a correct diagnosis.

There is a tendency to follow fort cuts and when examining one area of the body to forget that it is only a part of the whole. The abuse of incomplete study of a patient has led to the point where the diagnosis of chronic appendicitis is considered a ridiculous and where a prominent internist has said there is no such condition. With the complaint of pain other parts of the body supplied by the same nerves have been frequently overlooked as the seat of the pathology.

This patient is presented as illustration of the foregoing remarks. A male forty-five years who seven months ago while in the act of lifting a bag of cement and turning coincidentally to the left—putting the load upon the pelvis and lower extremity—suffered a knife-like pain in the right lower lumbar region and subsequently a persistent dull low lumbar pain. He immediately consulted a physician who strapped the low lumbar and sacro-iliac region with adhesive. The pain however persisted and was noted by the patient to be quite marked in the right inguinal region. The physician in attendance was therefore so impressed that he operated for a right inguinal hernia but found no unusual condition other than an early peritoneal bulge at the internal inguinal rim. The pain persisted till present and now after even months the affected inguinal region is planning to operate for a nerve cauht in a suture.

The pain of a dull aching character increased to a sharp knife-like type at times by any motion of the lumbar spine lifting, straining at stool or by a sudden jar. It is striking to note while seated in a chair at the secretary's desk pain caused the patient to suddenly drop from the chair to the floor. The distribution of the pain is located below the patient's aector illustrated Fig. 569. A great deal is obtained by reclining on a mattress placed upon the floor or by standing with his back against the wall. You observe that he walks with his feet flat on the floor, his head inclined forward and with a hunched upper back. He rises and sits with

great care. All lumbar spine movements are limited to 10 per cent of normal. Hyperflexion and extension of the right thigh increase the pain.

There is a band like area of increased sensibility to pain and light touch stimuli over the skin supplied by the tenth dorsal to the second lumbar roots as illustrated in Fig. 569. The right testicle and spermatic cord were sensitive to pressure and it is of interest to note that they are also supplied by the same in

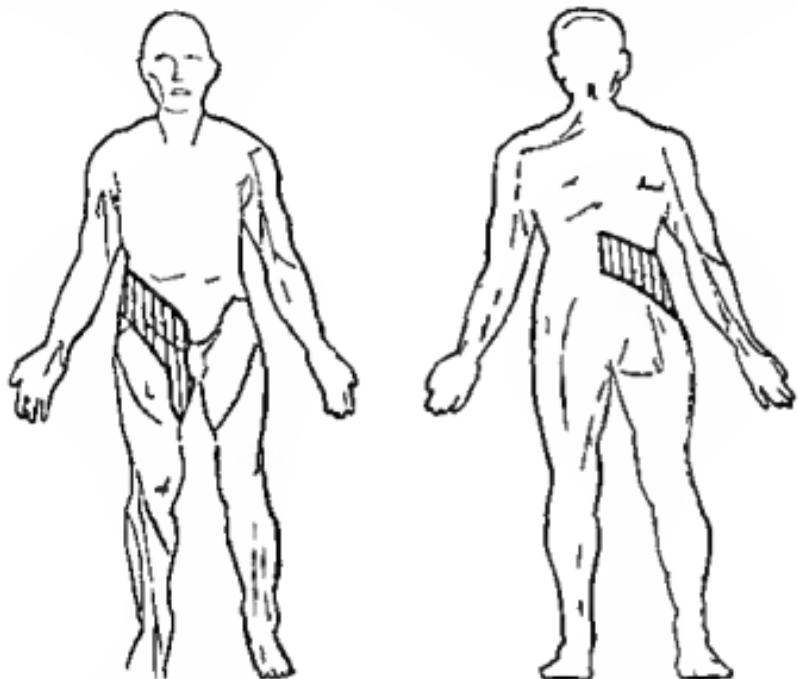


Fig. 569.—Rad. 1 d t h t f b y t pa d ea f t
h pe lg l gt thd lt dl mb t

involved dorsal roots. You observe the flattening of the normal lumbar ventral curve and the tenderness present over the lumbar vertebrae on the right most marked at the third and fourth. The remainder of the physical examination is quite normal. The Roentgen ray examination shows marked hypertrophic changes on the upper four lumbar vertebrae with slight rotation of the body of the third to the left. Oblique fracture of the left lamina of the fourth lumbar vertebra extending into the articular process.

The therapeutic is a jacket for immobilization of the lumbar spine has given the patient the first comfort he has had since the accident.

The patient has had then an irritation to the posterior root of the tenth dorsal to the second lumbar nerve resulting in pain distributed along the course of these same nerves. All because the character and other attributes of the pain were not fully evaluated the patient was subjected unnecessarily to a hernioplasty and preparation for another surgical procedure is in progress. There are many patients who consult us with equally a definite abdominal complaints but with the pathology located in the posterior root. Radiculitis such as this patient has and characterized by pain influenced by movement of the vertebral column or by other mechanical factors such as lifting, straining cough or sneezing is frequently overlooked. A complete clinical history containing all aspects of the past and a complete physical examination to rule out any lesions that might simulate the abdominal complaint are of maximum importance and will save us from error of commission and prevent errors of omission.

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THE
SURGICAL CLINICS
OF
NORTH AMERICA

VOLUME 8 1928
WITH 569 ILLUSTRATIONS

PHILADELPHIA AND LONDON
W B SAUNDERS COMPANY

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